

Figure 1A

4.1.1 Heavy Chain DNA

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ATGGAGTTTG GGCTGAGCTG GGTTCCTC GTTGCTCTTT TAAGAGGTGT 50
CCAGTGTGAG GTGCAGCTGG TGGAGTCTGG GGGAGGCGTG GTCCAGCCTG 100
GGAGGTCCCT GAGACTCTCC TGTGTAGCGT CTGGATTAC CTTAGTAGC 150
CATGGCATGC ACTGGGTCCG CCAGGCTCCA GGCAAGGGGC TGGAGTGGGT 200
GGCAGTTATA TGGTATGATG GAAGAAATAA ATACTATGCA GACTCCGTGA 250
AGGGCCGATT CACCATCTCC AGAGACAATT CCAAGAACAC GCTGTTTCTG 300
CAAATGAACA GCCTGAGAGC CGAGGACACG GCTGTGTATT ACTGTGCGAG 350
AGGAGGTCAC TTCGGTCCTT TTGACTACTG GGGCCAGGGA ACCCTGGTCA 400
CCGTCTCCTC AGCCTCCACC AAGGGCCCAT CGGTCTTCCC CCTGGCGCCC 450
TGCTCCAGGA GCACCTCCGA GAGCACAGCG GCCCTGGGCT GCCTGGTCAA 500
GGACTACTTC CCCGAACCGG TGACGGTGTG GTGGAAGTCA GGCCTCTGA 550
CCAGCGGCGT GCACACCTTC CCAGCTGTCC TACAGTCCTC AGGACTCTAC 600
TCCCTCAGCA GCGTGGTGAC CGTGCCCTCC AGCAACTTCG GCACCCAGAC 650
CTACACCTGC AACGTAGATC ACAAGCCAG CAACACCAAG GTGGACAAGA 700
CAGTTGAGCG CAAATGTTGT GTCGAGTGCC CACCGTGCCC AGCACCACCT 750
GTGGCAGGAC CGTCAGTCTT CCTCTTCCCC CAAAACCCA AGGACACCCT 800
CATGATCTCC CGGACCCCTG AGGTCACGTG CGTGGTGGTG GACGTGAGCC 850
ACGAAGACCC CGAGGTCCAG TTCAACTGGT ACGTGGACGG CGTGGAGGTG 900
CATAATGCCA AGACAAAGCC ACGGGAGGAG CAGTTCAACA GCACGTTCCG 950
TGTGGTCAGC GTCCTCACCG TTGTGCACCA GGAAGTGGTG AACGGCAAGG 1000
AGTACAAGTG CAAGGTCTCC AACAAAGGCC TCCCAGCCCC CATCGAGAAA 1050
ACCATCTCCA AAACCAAAGG GCAGCCCCGA GAACACAGG TGTACACCCT 1100
GCCCCATCC CGGGAGGAGA TGACCAAGAA CCAGGTCAGC CTGACCTGCC 1150
TGGTCAAAGG CTTCTACCCC AGCGACATCG CCGTGGAGTG GGAGAGCAAT 1200
GGGCAGCCGG AGAACAATA CAAGACCACA CCTCCCATGC TGGACTCCGA 1250
CGGCTCCTTC TTCCTCTACA GCAAGCTCAC CGTGGACAAG AGCAGGTGGC 1300
AGCAGGGGAA CGTCTTCTCA TGCTCCGTGA TGCATGAGGC TCTGCACAAC 1350
CACTACACGC AGAAGAGCCT CTCCCTGTCT CCGGGTAAAT GA 1392

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(SEQ ID NO:27)

4.1.1 Heavy Chain Protein

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MEFGLSWVFL VALLRGVQCQ VOLVESGGGV VQPGRSLRLS CVASGFTFSS 50
HGMHWVRQAP GKLEWVAVI WYDGRNKYYA DSVKGRFTIS RDNSKNTLFL 100
QMNSLRAEDT AVYYCARGGH FGPFYWGQG TLVTVSSAST KGPSVFPLAP 150
CSRSTSESTA ALGCLVKDYF PEPVTVSWNS GALTSGVHTF PAVLQSSGLY 200
SLSSVVTGPS SNFGTQTYTC NVDHKPSNTK VDKTVERKCC VECPPCPAPP 250
VAGPSVFLFP PKPKDTLMIS RTPEVTCVVV DVSHEDPEVQ FNWYVDGVEV 300
HNAKTKPREE QFNSTFRVVS VLTVVHQDWL NGKEYKCKVS NKGLPAPIEK 350
TISKTKGQPR EPQVYTLPPS REEMTKNQVS LTCLVKGFYP SDIAVEWESN 400
GQPENNYKTT PPM LDSGSF FLYSKLTVDK SRWQQGNVFS CSVMHEALHN 450
HYTQKSLSL PGK 463

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(SEQ ID NO:1)

Figure 1A (continued)**4.1.1 Kappa Chain DNA**

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ATGGAAACCC CAGCGCAGCT TCTCTTCCTC CTGCTACTCT GGCTCCCAGA 50
TACCACCGGA GAAATTGTGT TGACGCAGTC TCCAGGCACC CTGTCTTTGT 100
CTCCAGGGGA AAGAGCCACC CTCTCCTGCA GGGCCAGTCA GAGTATTAGC 150
AGCAGCTTCT TAGCCTGGTA CCAGCAGAGA CCTGGCCAGG CTCCCAGGCT 200
CCTCATCTAT GGTGCATCCA GCAGGGCCAC TGGCATCCCA GACAGGTTCA 250
GTGGCAGTGG GTCTGGGACA GACTTCACTC TCACCATCAG CAGACTGGAG 300
CCTGAAGATT TTGCAGTGTA TTA CTGTCAG CAGTATGGTA CCTCACCTG 350
GACGTTCCGC CAAGGGACCA AGGTGGAAAT CAAACGAACT GTGGCTGCAC 400
CATCTGTCTT CATCTTCCCG CCATCTGATG AGCAGTTGAA ATCTGGA ACT 450
GCCTCTGTTG TGTGCCTGCT GAATAACTTC TATCCCAGAG AGGCCAAAGT 500
ACAGTGGAAG GTGGATAACG CCCTCCAATC GGGTAACTCC CAGGAGAGTG 550
TCACAGAGCA GGACAGCAAG GACAGCACCT ACAGCCTCAG CAGCACCTG 600
ACGCTGAGCA AAGCAGACTA CGAGAAACAC AAAGTCTACG CCTGCGAAGT 650
CACCCATCAG GGCCTGAGCT CGCCCGTCAC AAAGAGCTTC AACAGGGGAG 700
AGTGTTAG 708

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(SEQ ID NO:40)

4.1.1 Kappa Chain Protein

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METPAQLLFL LLLWLPD TTG EIVLTQSPGT LSLSPGERAT LSCRASQ SIS 50
SSFLAWYQQR PGQAPRL LIY GASSRATGIP DRFSGSGSGT DFTLTISRLE 100
PEDFAVYYCQ QYGTSPWTFG QGTKVEIKRT VAAPSVFIFP PSDEQLKSGT 150
ASVVCLLN NF YPREAKVQWK VDNALQSGNS QESVTEQDSK DSTYSL S STL 200
TL SKADYEKH K VYACEVTHQ GLSSPVTKSF NRGEC 235

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(SEQ ID NO:14)

Figure 1B**4.8.1 Heavy Chain DNA**

ATGGAGTTTG	GGCTGAGCTG	GGTTTTCTC	GTTGCTCTTT	TAAGAGGTGT	50
CCAGTGTCTCAG	GTGCAGCTGG	TGGAGTCTGG	GGGAGGCGTG	GTCCAGCCTG	100
GGAGGTCCCT	GAGACTCTCC	TGTACAGCGT	CTGGATTAC	CTTCAGTAAC	150
TATGGCATGC	ACTGGGTCCG	CCAGGCTCCA	GGCAAGGGGC	TGGAGTGGGT	200
GGCAGTTATA	TGGTATGATG	GAAGTAATAA	ACACTATGGA	GACTCCGTGA	250
AGGGCCGATT	CACCATCTCC	AGTGACAATT	CCAAGAACAC	GCTGTATCTG	300
CAAATGAACA	GCCTGAGAGC	CGAGGACACG	GCTGTGTATT	ACTGTGCGAG	350
AGGAGAGAGA	CTGGGGTCTC	ACTTTGACTA	CTGGGGGCCAG	GGAACCCTGG	400
TCACCGTCTC	CTCAGCCTCC	ACCAAGGGCC	CATCGGTCTT	CCCCCTGGCG	450
CCCTGCTCCA	GGAGCACCTC	CGAGAGCACA	GCGGCCCTGG	GCTGCCTGGT	500
CAAGGACTAC	TTCCCCGAAC	CGGTGACGGT	GTCGTGGAAC	TCAGGCGCTC	550
TGACCAGCGG	CGTGACACAC	TTCCCAGCTG	TCCTACAGTC	CTCAGGACTC	600
TACTCCCTCA	GCAGCGTGGT	GACCGTGCCC	TCCAGCAACT	TCGGCACCCA	650
GACCTACACC	TGCAACGTAG	ATCACAAGCC	CAGCAACACC	AAGGTGGACA	700
AGACAGTTGA	GCGCAAATGT	TGTGTGCGAGT	GCCCCACGTG	CCCAGCACCA	750
CCTGTGGCAG	GACCGTCAGT	CTTCCTCTTC	CCCCCAAAC	CCAAGGACAC	800
CCTCATGATC	TCCCGGACCC	CTGAGGTCAC	GTGCGTGGTG	GTGGACGTGA	850
GCCACGAAGA	CCCCGAGGTC	CAGTTCAACT	GGTACGTGGA	CGGCGTGGAG	900
GTGCATAATG	CCAAGACAAA	GCCACGGGAG	GAGCAGTTCA	ACAGCACGTT	950
CCGTGTGGTC	AGCGTCCTCA	CCGTTGTGCA	CCAGGACTGG	CTGAACGGCA	1000
AGGAGTACAA	GTGCAAGGTC	TCCAACAAAG	GCCTCCCAGC	CCCCATCGAG	1050
AAAACCATCT	CCAAAACCAA	AGGGCAGCCC	CGAGAACCAC	AGGTGTACAC	1100
CCTGCCCCCA	TCCCGGGAGG	AGATGACCAA	GAACCAGGTC	AGCCTGACCT	1150
GCCTGGTCAA	AGGCTTCTAC	CCCAGCGACA	TCGCCGTGGA	GTGGGAGAGC	1200
AATGGGCAGC	CGGAGAACAA	CTACAAGACC	ACACCTCCCA	TGCTGGACTC	1250
CGACGGCTCC	TTCTTCCTCT	ACAGCAAGCT	CACCGTGGAC	AAGAGCAGGT	1300
GGCAGCAGGG	GAACGTCTTC	TCATGCTCCG	TGATGCATGA	GGCTCTGCAC	1350
AACCACTACA	CGCAGAAGAG	CCTCTCCCTG	TCTCCGGGTA	AATGA	1395

(SEQ ID NO:28)

4.8.1 Heavy Chain Protein

MEFGLSWVFL	VALLRGVQCQ	VQLVESGGGV	VQPGRLRLS	CTASGFTFSN	50
YGMHWVRQAP	GKGLEWVAVI	WYDGSNKHYG	DSVKGRFTIS	SDNSKNTLYL	100
QMNSLRAEDT	AVYYCARGER	LGSYFDYWQ	GTLVTVSSAS	TKGPSVFPLA	150
PCSRSTSEST	AALGCLVKDY	FPEPVTVSWN	SGALTSGVHT	FPAVLQSSGL	200
YSLSSVVTVP	SSNFGTQTYT	CNVDHKPSNT	KVDKTVKRC	CVECPPCPAP	250
PVAGPSVFLF	PPKPKDTLMI	SRTPEVTCVV	VDVSHEDPEV	QFNWYVDGVE	300
VHNAKTKPRE	EQFNSTFRVV	SVLTVVHQDW	LNGKEYKCKV	SNKGLPAPIE	350
KTISKTKGQP	REPQVYTLPP	SREEMTKNQV	SLTCLVKGFY	PSDIAVEWES	400
NGQPENNYKT	TPPMLDSGDS	FFLYSKLTVD	KSRWQQGNVF	SCSVMHEALH	450
NHYTQKSLSL	SPGK				464

(SEQ ID NO:2)

Figure 1B (continued)**4.8.1 Kappa Chain DNA**

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ATGGAAACCC CAGCGCAGCT TCTCTTCCTC CTGCTACTCT GGCTCCCAGA 50
TACCACCGGA GAAATTGTGT TGACGCAGTC TCCAGGCACC CTGTCTTTGT 100
CTCCAGGGGA AAGAGCCACC CTCTCCTGCA GGACCAGTGT TAGCAGCAGT 150
TACTTAGCCT GGTACCAGCA GAAACCTGGC CAGGCTCCCA GGCTCCTCAT 200
CTATGGTGCA TCCAGCAGGG CCACTGGCAT CCCAGACAGG TTCAGTGGCA 250
GTGGGTCTGG GACAGACTTC ACTCTCACCA TCAGCAGACT GGAGCCTGAA 300
GATTTTGCAG TCTATTACTG TCAGCAGTAT GGCATCTCAC CCTTCACTTT 350
CGGCGGAGGG ACCAAGGTGG AGATCAAGCG AACTGTGGCT GCACCATCTG 400
TCTTCATCTT CCCGCCATCT GATGAGCAGT TGAAATCTGG AACTGCCTCT 450
GTTGTGTGCC TGCTGAATAA CTTCTATCCC AGAGAGGCCA AAGTACAGTG 500
GAAGGTGGAT AACGCCCTCC AATCGGGTAA CTCCCAGGAG AGTGTACACAG 550
AGCAGGACAG CAAGGACAGC ACCTACAGCC TCAGCAGCAC CCTGACGCTG 600
AGCAAAGCAG ACTACGAGAA ACACAAAGTC TACGCCTGCG AAGTCACCCA 650
TCAGGGCCTG AGCTCGCCCG TCACAAAGAG CTTCAACAGG GGAGAGTGTT 700
AG

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(SEQ ID NO:41)

4.8.1 Kappa Chain Protein

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METPAQLLFL LLLWLPDTTG EIVLTQSPGT LSLSPGERAT LSCRTSVSSS 50
YLAWYQQKPG QAPRLLIYGA SSRATGIPDR FSGSGSGTDF TLTISRLEPE 100
DFAVYYCQQY GISPFTFGGG TKVEIKRTVA APSVFIFPPS DEQLKSGTAS 150
VVCLLNNFYP REAKVQWKVD NALQSGNSQE SVTEQDSKDS TYSLSTLTTL 200
SKADYEKHKV YACEVTHQGL SSPVTKSFNR GEC 233

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(SEQ ID NO:15)

Figure 1C**4.14.3 Heavy Chain DNA**

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CCTGGGAGGT CCCTGAGACT CTCCTGTGCA GCGTCTGGAT TCACCTTCAG 50
TAGTCATGGC ATCCACTGGG TCCGCCAGGC TCCAGGCAAG GGGCTGGAGT 100
GGGTGGCAGT TATATGGTAT GATGGAAGAA ATAAAGACTA TGCAGACTCC 150
GTGAAGGGCC GATTCAACCAT CTCCAGAGAC AATTCCAAGA AGACGCTGTA 200
TTTGCAAATG AACAGCCTGA GAGCCGAGGA CACGGCTGTG TATTACTGTG 250
CGAGAGTGGC CCCACTGGGG CCACTTGACT ACTGGGGCCA GGGAACCCTG 300
GTCACCGTCT CCTCAGCCTC CACCAAGGGC CCATCGGTCT TCCCCCTGGC 350
GCCCTGCTCC AGGAGCACCT CCGAGAGCAC AGCGGCCCTG GGCTGCCTGG 400
TCAAGGACTA CTTCCCCGAA CCGGTGACGG TGTCGTGGAA CTCAGGCGCT 450
CTGACCAGCG GCGTGCACAC CTTCCCAGCT GTCCTACAG 489

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(SEQ ID NO:29)

4.14.3 Heavy Chain Protein

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PGRSLRLSCA ASGFTFSSHQ IHWVRQAPGK GLEWVAVIWY DGRNKDYADS 50
VKGRFTISRD NSKKTLYLQM NSLRAEDTAV YYCARVAPLG PLDYWGQGT 100
VTVSSASTKG PSVFPLAPCS RSTSESTAAL GCLVKDYFPE PVTVSWNSGA 150
LTSGVHTFPA VLQ 163

```

(SEQ ID NO:3)

4.14.3 Kappa Chain DNA

```

GGCACCCCTGT CTTTGTCTCC AGGGGAAAGA GCCACCCTCT CCTGCAGGGC 50
CAGTCAGAGT GTCAGCAGCT ACTTAGCCTG GTACCAGCAG AAACCTGGCC 100
AGGCTCCCAG ACTCCTCATC TATGGTGCAT CCAGCAGGGC CACTGGCATC 150
CCAGACAGGT TCAGTGGCAG TGGGTCTGGG ACAGACTTCA CTCTCACCAT 200
CAGCAGACTG GAGCCTGAGG ATTTTGCAGT GTATTACTGT CAGCAGTATG 250
GTAGGTCACC ATTCACTTTC GGCCCTGGGA CCAAAGTGA TATCAAGCGA 300
ACTGTGGCTG CACCATCTGT CTTCATCTTC CCGCCATCTG ATGAGCAGTT 350
GAAATCTGGA ACTGCCTCTG TTGTGTGCCT GCTGAATAAC TTCTATCCCA 400
GAGAGGCCAA AGTACAG 417

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(SEQ ID NO:42)

4.14.3 Kappa Chain Protein

```

GTLSSLSPGER ATLSCRASQS VSSYLAWYQQ KPGQAPRLLI YGASSRATGI 50
PDRFSGSGSG TDFTLTISRL EPEDFAVYYC QQYGRSPFTF GPGTKVDIKR 100
TVAAPSVFIF PPSDEQLKSG TASVVCLLNN FYPREAKVQ 139

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(SEQ ID NO:16)

Figure 1D**6.1.1 Heavy Chain DNA**

ATGGAGTTTG	GGCTGAGCTG	GGTTTTCTC	GTTGCTCTTT	TAAGAGGTGT	50
CCAGTGTGAG	GTGCAGCTGG	TGGAGTCTGG	GGGAGGCGTG	GTCGAGCCTG	100
GGAGGTCCCT	GAGACTCTCC	TGTACAGCGT	CTGGATTAC	CTTCAGTAGT	150
TATGGCATGC	ACTGGGTCCG	CCAGGCTCCA	GGCAAGGGGC	TGGAGTGGGT	200
GGCAGTTATA	TGGTATGATG	GAAGCAATAA	ACACTATGCA	GACTCCGCGA	250
AGGGCCGATT	CACCATCTCC	AGAGACAATT	CCAAGAACAC	GCTGTATCTG	300
CAAATGAACA	GCCTGAGAGC	CGAGGACACG	GCTGTGTATT	ACTGTGCGAG	350
AGCCGGACTG	CTGGGTACT	TTGACTACTG	GGGCCAGGGA	ACCCTGGTCA	400
CCGTCTCCTC	AGCCTCCACC	AAGGGCCCAT	CGGTCTTCCC	CCTGGCGCCC	450
TGCTCCAGGA	GCACCTCCGA	GAGCACAGCG	GCCCTGGGCT	GCCTGGTCAA	500
GGACTACTTC	CCCGAACCGG	TGACGGTGTC	GTGGAACCTA	GGCGCTCTGA	550
CCAGCGGCGT	GCACACCTTC	CCAGCTGTCC	TACAGTCCTC	AGGACTCTAC	600
TCCCTCAGCA	GCGTGGTGAC	CGTGCCCTCC	AGCAACTTCG	GCACCCAGAC	650
CTACACCTGC	AACGTAGATC	ACAAGCCCAG	CAACACCAAG	GTGGACAAGA	700
CAGTTGAGCG	CAAATGTTGT	GTCGAGTGCC	CACCGTGCCC	AGCACCACCT	750
GTGGCAGGAC	CGTCAGTCTT	CCTCTTCCCC	CCAAAACCCA	AGGACACCCT	800
CATGATCTCC	CGGACCCCTG	AGGTCACGTG	CGTGGTGGTG	GACGTGAGCC	850
ACGAAGACCC	CGAGGTCCAG	TTCAACTGGT	ACGTGGACGG	CGTGGAGGTG	900
CATAATGCCA	AGACAAAGCC	ACGGGAGGAG	CAGTTCAACA	GCACGTTCCG	950
TGTGGTCAGC	GTCCTCACCG	TTGTGCACCA	GGACTGGCTG	AACGGCAAGG	1000
AGTACAAGTG	CAAGGTCTCC	AACAAAGGCC	TCCAGCCCC	CATCGAGAAA	1050
ACCATCTCCA	AAACCAAAGG	GCAGCCCCGA	GAACCACAGG	TGTACACCTT	1100
GCCCCCATCC	CGGGAGGAGA	TGACCAAGAA	CCAGGTCAGC	CTGACCTGCC	1150
TGGTCAAAGG	CTTCTACCCC	AGCGACATCG	CCGTGGAGTG	GGAGAGCAAT	1200
GGGCAGCCGG	AGAACAATA	CAAGACCACA	CCTCCCATGC	TGGACTCCGA	1250
CGGCTCCTTC	TTCCTCTACA	GCAAGCTCAC	CGTGGACAAG	AGCAGGTGGC	1300
AGCAGGGGAA	CGTCTTCTCA	TGCTCCGTGA	TGCATGAGGC	TCTGCACAAC	1350
CACTACACGC	AGAAGAGCCT	CTCCCTGTCT	CCGGGTAAAT	GA	1392

(SEQ ID NO:30)

6.1.1 Heavy Chain Protein

MEFGLSWVFL	VALLRGVQCQ	VQLVESGGGV	VEPGRSLRLS	CTASGFTFSS	50
YGMHWVRQAP	GKGLEWVAVI	WYDGSNKHYA	DSAKGRFTIS	RDNSKNTLYL	100
QMNSLRAEDT	AVYYCARAGL	LGYFDYWQQG	TLVTVSSAST	KGPSVFPLAP	150
CSRSTSESTA	ALGCLVKDYF	PEPVTVSWNS	GALTSGVHTF	PAVLQSSGLY	200
SLSSVVTVPS	SNFGTQTYTC	NVDHKPSNTK	VDKTVERKCC	VECPPCPAPP	250
VAGPSVFLFP	PKPKDTLMIS	RTPEVTCVVV	DVSHEDPEVQ	FNWYVDGVEV	300
HNAKTKPREE	QFNSTFRVVS	VLTVVHQDWL	NGKEYKCKVS	NKGLPAPIEK	350
TISKTKGQPR	EPQVYTLPPS	REEMTKNQVS	LTCLVKGFYP	SDIAVEWESN	400
GQPENNYKTT	PPMLDSGGSF	FLYSKLTVDK	SRWQQGNVFS	CSVMHEALHN	450
HYTQKSLSL	PGK				463

(SEQ ID NO:4)

Figure 1D (continued)**6.1.1 Kappa Chain DNA**

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ATGGAACCC CAGCGCAGCT TCTCTTCCTC CTGCTACTCT GGCTCCCAGA 50
TACCACCGGA GAAATTGTGT TGACGCAGTC TCCAGGCACC CTGTCTTTGT 100
CTCCAGGGGA AAGAGCCACC CTCTCCTGTA GGGCCAGTCA AAGTGTTAGC 150
AGCTACTTAG CCTGGTACCA ACAGAAACCT GGCCAGGCTC CCAGGCCCCCT 200
CATCTATGGT GTATCCAGCA GGGCCACTGG CATCCCAGAC AGGTTTCAGTG 250
GCAGTGGGTC TGGGACAGAC TTCACTCTCA CCATCAGCAG ACTGGAGCCT 300
GAAGATTTTG CAGTGTATTA CTGTCAGCAG TATGGTATCT CACCATTAC 350
TTTCGGCCCT GGGACCAAAG TGGATATCAA ACGAACTGTG GCTGCACCAT 400
CTGTCTTCAT CTTCCCGCCA TCTGATGAGC AGTTGAAATC TGGAAGTGCC 450
TCTGTTGTGT GCCTGCTGAA TAACTTCTAT CCCAGAGAGG CCAAAGTACA 500
GTGGAAGGTG GATAACGCCC TCCAATCGGG TAACTCCCAG GAGAGTGTCA 550
CAGAGCAGGA CAGCAAGGAC AGCACCTACA GCCTCAGCAG CACCCTGACG 600
CTGAGCAAAG CAGACTACGA GAAACACAAA GTCTACGCCT GCGAAGTCAC 650
CCATCAGGGC CTGAGCTCGC CCGTCACAAA GAGCTTCAAC AGGGGAGAGT 700
GTTAG 705

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(SEQ ID NO:43)

6.1.1 Kappa Chain Protein

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METPAQLLFL LLLWLDPDTTG EIVLTQSPGT LSLSPGERAT LSCRASQSVS 50
SYLAWYQQKP GQAPRPLIYG VSSRATGIPD RFSGSGSGTD FTLTISRLEP 100
EDFAVYYCQQ YGISPFTFGP GTKVDIKRTV AAPSVFIFPP SDEQLKSGTA 150
SVVCLLNNFY PREAKVQWKV DNALQSGNSQ ESVTEQDSKD STYSLSSTLT 200
LSKADYEKHK VYACEVTHQG LSSPVTKSFN RGEK 234

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(SEQ ID NO:17)

Figure 1E**3.1.1 Heavy Chain DNA**

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GGCGTGGTCC AGCCTGGGAG GTCCCTGAGA CTCTCCTGTG CAGCGTCTGG 50
ATTCACCTTC AGTAGCTATG GCATGCACTG GGTCCGCCAG GCTCCAGGCA 100
AGGGGCTGGA GTGGGTGGCA GTTATATGGT ATGATGGAAG TAATAAATAC 150
TATGCAGACT CCGTGAAGGG CCGATTACAC ATCTCCAGAG ACAATTCCAA 200
GAACACGCTG TATCTGCAAA TGAACAGCCT GAGAGCCGAG GACACGGCTG 250
TGTATTACTG TGCGAGAGGG GCGCGTATAA TAACCCCTTG TATGGACGTC 300
TGGGGCCAAG GGACCACGGT CACCGTCTCC TCAGCCTCCA CCAAGGGCCC 350
ATCGGTCTTC CCCCTGGCGC CCTGCTCCAG GAGCACCTCC GAGAGCACAG 400
CGGCCCTGGG CTGCCTGGTC AAGGACTACT TCCCCGAACC GGTGACGGTG 450
TCGTGGAAC T CAGGCGCTCT GACCAGCGGC GTGCACACCT TCCCAGCTGT 500
CCTACAG 507

```

(SEQ ID NO:31)

3.1.1 Heavy Chain Protein

```

GVVQPGRSLR LSCAASGFTF SSYGMHWVRQ APGKGLEWVA VIWYDGSNKY 50
YADSVKGRFT ISRDNSKNTL YLQMNSLRAE DTAVYYCARG ARIITPCMDV 100
WGQGTIVTVS SASTKGPSVF PLAPCSRSTS ESTAALGCLV KDYFPEPVTV 150
SWNSGALTSG VHTFPAVLQ 169

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(SEQ ID NO:5)

3.1.1 Kappa Chain DNA

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CAGTCTCCAT CCTCCCTGTC TGCATCTGTA GGAGACAGAG TCACCATCAC 50
TTGCCGGGCA AGTCAGAGCA TTAACACCTA TTTAATTTGG TATCAGCAGA 100
AACCAGGGAA AGCCCCTAAC TTCCTGATCT CTGCTACATC CATTTTGCAA 150
AGTGGGGTCC CATCAAGGTT CCGTGGCAGT GGCTCTGGGA CAAATTTTCAC 200
TCTCACCATC AACAGTCTTC ATCCTGAAGA TTTTGCAACT TACTACTGTC 250
AACAGAGTTA CAGTACCCCA TTCACCTTCG GCCCTGGGAC CAAAGTGGAT 300
ATCAAACGAA CTGTGGCTGC ACCATCTGTC TTCATCTTCC CGCCATCTGA 350
TGAGCAGTTG AAATCTGGAA CTGCCTCTGT TGTGTGCCTG CTGAATAACT 400
TCTATCCCAG AGAGGCCAAA GTACAGTGGA AGGTGGATAA CGCCCTCCAA 450
TCGGGTAA 458

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(SEQ ID NO:44)

3.1.1 Kappa Chain Protein

```

QSPSSLSASV GDRVITICRA SQSINTYLIW YQQKPGKAPN FLISATSIQ 50
SGVPSRFRGS GSGTNFTLTI NSLHPEDFAT YYCQQSYSTP FTFGPGTKVD 100
IKRTVAAPSV FIFPPSDEQL KSGTASVCL LNNFYPREAK VQWKVDNALQ 150
SG 152

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(SEQ ID NO:18)

Figure 1F**4.10.2 Heavy Chain DNA**

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GGCGTGGTCC AGCCTGGGAG GTCCCTGAGA CTCTCCTGTG TAGCGTCTGG 50
ATTCATCTTC AGTAGTCATG GCATCCACTG GGTCCGCCAG GCTCCAGGCA 100
AGGGGCTGGA GTGGGTGGCA GTTATATGGT ATGATGGAAG AAATAAAGAC 150
TATGCAGACT CCGTGAAGGG CCGATTACAC ATCTCCAGAG ACAATTCCAA 200
GAACACGCTG TATTTGCAAA TGAACAGCCT GAGAGCCGAG GACACGGCTG 250
TGTATTACTG TGCGAGAGTG GCCCCACTGG GGCCACTTGA CTA CTG TGGGGC 300
CAGGGAACCC TGGTCACCGT CTCCTCAGCC TCCACCAAGG GCCCATCGGT 350
CTTCCCCCTG GCGCCCTGCT CCAGGAGCAC CTCCGAGAGC ACAGCGGCCC 400
TGGGCTGCCT GGTCAAGGAC TACTTCCCCG AACCGGTGAC GGTGTCGTGG 450
AACTCAGGCG CTCTGACCAG CGGCGTGCAC ACCTTCCCAG CTGTCCTACA 500
G 501

```

(SEQ ID NO:32)

4.10.2 Heavy Chain Protein

```

GVVQPGRSLR LSCVASGFIF SSHGIHWVRQ APGKGLEWVA VIWYDGRNKD 50
YADSVKGRFT ISRDNSKNTL YLQMNSLRAE DTAVYYCARV APLGPLDYWG 100
QGTLTVTSSA STKGPSVFPL APCSRSTSES TAALGCLVKD YFPEPVTVSW 150
NSGALTSGVH TFPVLQ 167

```

(SEQ ID NO:6)

4.10.2 Kappa Chain DNA

```

TCTCCAGGCA CCCTGTCTTT GTCTCCAGGG GAAAGAGCCA CCCTCTCCTG 50
CAGGGCCAGT CAGAGTATTA GCAGCAATTT CTTAGCCTGG TACCAGCAGA 100
AACCTGGCCA GGCTCCAGG CTCCTCATCT ATCGTCCATC CAGCAGGGCC 150
ACTGGCATCC CAGACAGTTT CAGTGGCAGT GGGTCTGGGA CAGACTTCAC 200
TCTCACCATC AGCAGACTGG AGCCTGAGGA TTTTGCATTA TATTACTGTC 250
AGCAGTATGG TACGTCACCA TTCACTTTTCG GCCCTGGGAC CAAAGTGGAT 300
ATCAAGCGAA CTGTGGCTGC ACCATCTGTC TTCATCTTCC CGCCATCTGA 350
TGAGCAGTTG AAATCTGGAA CTGCCTCTGT TGTGTGCCTG CTGAATAACT 400
TCTATCCCAG AGAGGCCAAA GTACAG 426

```

(SEQ ID NO:45)

4.10.2 Kappa Chain Protein

```

SPGTLSSLSPG ERATLSCRAS QSISSNFLAW YQKPGQAPR LLIYRPSSRA 50
TGIPDSFSGS GSGTDFTLTI SRLEPEDFAL YYCQYGTSP FTFGPGTKVD 100
IKRTVAAPSV FIFPPSDEQL KSGTASVACL LNNFYPREAK VQ 142

```

(SEQ ID NO:19)

Figure 1G**2.1.3 Heavy Chain DNA**

TCGGGCCCAG	GACTGGTGAA	GCCTTCACAG	ATCCTGTCCC	TCACCTGCAC	50
TGTCTCTGGT	GGCTCCATCA	GCAGTGGTGG	TCACTACTGG	AGCTGGATCC	100
GCCAGCACCC	AGGGAAGGGC	CTGGAGTGGG	TTGGGTACAT	CTATTACATT	150
GGGAACACCT	ACTACAACCC	GTCCCTCAAG	AGTCGAGTTA	CCATATCAGT	200
AGACACGTCT	AAGAACCAGT	TCTCCCTGAA	GCTGAGCTCT	GTGACTGCCG	250
CGGACACGGC	CGTGTATTAT	TGTGCGAGAG	ATAGTGGGGA	CTACTACGGT	300
ATAGACGTCT	GGGGCCAAGG	GACCACGGTC	ACCGTCTCCT	CAGCTTCCAC	350
CAAGGGCCCA	TCCGTCTTCC	CCCTGGCGCC	CTGCTCCAGG	AGCACCTCCG	400
AGAGCACAGC	CGCCCTGGGC	TGCCTGGTCA	AGGACTACTT	CCCCGAACCG	450
GTGACGGTGT	CGTGGAAGTC	AGGCGCCCTG	ACCAGCGGCG	TGCACACCTT	500
CCCGGCTGTC	CTACAA				516

(SEQ ID NO:33)

2.1.3 Heavy Chain Protein

SGPGLVKPSQ	ILSLTCTVSG	GSISSGGHYW	SWIRQHPGKG	LEWIGYIYYI	50
GNTYYNPSLK	SRVTISVDTS	KNQFSLKLSS	VTAADTAVYY	CARDSGDYYG	100
IDVWGQGTTV	TVSSASTKGP	SVFPLAPCSR	STSESTAALG	CLVKDYFPEP	150
VTVSWNSGAL	TSGVHTFPAV	LQ			172

(SEQ ID NO:7)

2.1.3 Kappa Chain DNA

TCTCCAGACT	TTCAGTCTGT	GACTCCAAAG	GAGAAAGTCA	CCATCACCTG	50
CCGGGCCAGT	CAGAGCATTG	GTAGTAGCTT	ACATTGGTAT	CAGCAGAAAC	100
CAGATCAGTC	TCCAAAGCTC	CTCATCAAGT	ATGCTTCCCA	GTCCTTCTCT	150
GGGGTCCCCT	CGAGGTTTCAG	TGGCAGTGGG	TCTGGGACAG	ATTTACCCTT	200
CACCATCAAT	AGCCTGGAAG	CTGAAGATGC	TGCAACGTAT	TACTGTCATC	250
AGAGTAGTAG	TTTACCGCTC	ACTTTCGGCG	GAGGGACCAA	GGTGGAGATC	300
AAACGAACTG	TGGCTGCACC	ATCTGTCTTC	ATCTTCCCGC	CATCTGATGA	350
GCAGTTGAAA	TCTGGAACTG	CCTCTGTTGT	GTGCCTGCTG	AATAACTTCT	400
ATCCCAGAGA	GGCCAAAGTA	CAGTGGAAGG	TGGATAACGC	CCTCCAATCG	450
GGTAACTCCC	AGGAG				465

(SEQ ID NO:46)

2.1.3 Kappa Chain Protein

SPDFQSVTPK	EKVTITCRAS	QSIGSSLHWY	QQKPDQSPKL	LIKYASQSFS	50
GVPSRFGSGS	SGTDFTLTIN	SLEAEDAATY	YCHQSSSLPL	TFGGGTKVEI	100
KRTVAAPSVF	IFPPSDEQLK	SGTASVVCLL	NNFYPREAKV	QWKVDNALQS	150
GNSQE					155

(SEQ ID NO:20)

Figure 1H**4.13.1 Heavy Chain DNA**

```

CCTGGGAGGT CCCTGAGACT CTCCTGTGCA GCGTCTGGAT TCACCTTCAG 50
TAGTCATGGC ATCCACTGGG TCCGCCAGGC TCCAGGCAAG GGGCTGGAGT 100
GGGTGGCAGT TATATGGTAT GATGGAAGAA ATAAAGACTA TGCAGACTCC 150
GTGAAGGGCC GATTCACCAT CTCCAGAGAC AATTCCAAGA ACACGCTGTA 200
TTTGCAAATG AACAGCCTGA GAGCCGAGGA CACGGCTGTG TATTACTGTG 250
CGAGAGTGGC CCCACTGGGG CCACTTGACT ACTGGGGCCA GGGAACCCCTG 300
GTCACCGTCT CCTCAGCCTC CACCAAGGGC CCATCGGTCT TCCCCCTGGC 350
GCCCTGCTCC AGGAGCACCT CCGAGAGCAC AGCGGCCCTG GGCTGCCTGG 400
TCAAGGACTA CTTCCCCGAA CCGGTGACGG TGTCGTGGAA CTCAGGCGCT 450
CTGACCAGC 459

```

(SEQ ID NO:34)

4.13.1 Heavy Chain Protein

```

PGRSLRLSCA ASGFTFSSHG IHWVRQAPGK GLEWVAVIWY DGRNKDYADS 50
VKGRFTISR D NSKNTLYLQM NSLRAEDTAV YYCARVAPLG PLDYWGQGT 100
LTS
VTVSSASTKG PSVFPLAPCS RSTSESTAAL GCLVKDYFPE PVTVSWNSGA 150
LTS 153

```

(SEQ ID NO:8)

4.13.1 Kappa Chain DNA

```

CAGTCTCCAG GCACCCTGTC TTTGTCTCCA GGGGAAAGAG CCACCCTCTC 50
CTGCAGGGCC AGTCAGAGTG TCAGCAGCTA CTTAGCCTGG TACCAGCAGA 100
AACCTGGCCA GGCTCCCAGG CTCCTCATCT ATGGTGCATC CAGCAGGGCC 150
ACTGGCATCC CAGACAGGTT CAGTGGCAGT GGGTCTGGGA CAGACTTCAC 200
TCTCACCATC AGCAGACTGG AGCCTGAGGA TTTTGCAGTG TATTACTGTC 250
AACAGTATGG TAGGTCACCA TTTCACTTTTCG GCCCTGGGAC CAAAGTAGAT 300
ATCAAGCGAA CTGTGGCTGC ACCATCTGTC TTCATCTTCC CGCCATCTGA 350
TGAGCAGTTG AAATCTGGAA CTGCCTCTGT TGTGTGCCTG CTGAATAACT 400
TCTATCCCAG AGAGGCCAAA GTACAGTGGA AAGGTGGATA 440

```

(SEQ ID NO:47)

4.13.1 Kappa Chain Protein

```

QSPGTL LSLSP GERATLSCRA SQSVSSYLAW YQKPGQAPR LLIYGASSRA 50
TGIPDRFSGS GSGTDFTLTI SRLEPEDFAV YYCQYGRSP FTFGPGTKVD 100
IKRTVAAPSV FIFPPSDEQL KSGTASVCL LNNFYPREAK VQWKGG 146

```

(SEQ ID NO:21)

Figure 11**11.2.1 Heavy Chain DNA**

GGCGTGGTCC	AGCCTGGGAG	GTCCCTGAGA	CTCTCCTGTG	CAGCGTCTGG	50
ATTCACCTTC	AGTAGCTATG	GCATGCACTG	GGTCCGCCAG	GCTCCAGGCA	100
AGGGGCTGGA	GTGGGTGGCA	GTTATATGGT	ATGATGGAAG	TAATAAATAC	150
TATGCAGACT	CCGTGAAGGG	CCGATTACAC	ATCTCCAGAG	ACAATTCCAA	200
GAACACGCTG	TATCTGCAAA	TGAACAGCCT	GAGAGCCGAG	GACACGGCTG	250
TGTATTACTG	TGCGAGAGAT	CCGAGGGGAG	CTACCCTTTA	CTACTACTAC	300
TACCGGTKGG	ACGTCTGGGG	CCAAGGGACC	ACGGTCACCG	TCTCCTCAGC	350
CTCCACCAAG	GGCCCATCGG	TCTTCCCCCT	GGCGCCCTGC	TCCAGGAGCA	400
CCTCCGAGAG	CACAGCGGCC	CTGGGCTGCC	TGGTCAAGGA	CTACTTCCCC	450
GAACCGGTGA	CGGTGTCGTG	GAACTCAGGC	GCTCTGACCA	GCGGCGTGCA	500
CAC					503

(SEQ ID NO:35)

11.2.1 Heavy Chain Protein

GVVQPGRSLR	LSCAASGFTF	SSYGMHWVRQ	APGKGLEWVA	VIWYDGSNKY	50
YADSVKGRFT	ISRDN SKNTL	YLQMN SLRAE	DTAVYYCARD	PRGATLYYYY	100
YRXDVWGQGT	TVTVSSASTK	GPSVFPLAPC	SRSTSESTAA	LGCLVKDYFP	150
EPVTVSWNSG	ALTSGVH				167

(SEQ ID NO:9)

11.2.1 Kappa Chain DNA

CCATCCTCCC	TGTCTGCATC	TGTAGGAGAC	AGAGTCACCA	TCACTTGCCG	50
GGCAAGTCAG	AGCATTAAAC	GCTATTTAGA	TTGGTATCAG	CAGAAACCAG	100
GGAAAGCCCC	TAAACTCCTG	ATCTATGCTG	CATCCAGTTT	GCAAAGTGGG	150
GTCCCATCAA	GGTTCAGTGG	CAGTGGATCT	GGGACAGATT	TCACTCTCAC	200
CATCAGCAGT	CTGCAACCTG	AAGATTTTGC	AACTTACTAC	TGTCAACAGT	250
ATTACAGTAC	TCCATTCACT	TTCGGCCCTG	GGACCAAAGT	GGAAATCAAA	300
CGAACTGTGG	CTGCACCATC	TGTCTTCATC	TTCCCGCCAT	CTGATGAGCA	350
GTTGAAATCT	GGAAGTGCCT	CTGTTGTGTG	CCTGCTGAAT	AACTTCTATC	400
CCAGAGAGGC	CAAAGTA				417

(SEQ ID NO:48)

11.2.1 Kappa Chain Protein

PSSLASVGD	RVTITCRASQ	SINSYLDWYQ	QKPGKAPKLL	IYAASSLQSG	50
VPSRFSGSGS	GTDFTLTISS	LQPEDFATYY	CQQYSTPFT	FGPGTKVEIK	100
RTVAAPSVFI	FPPSDEQLKS	GTASVVCLLN	NFYPREAKV		139

(SEQ ID NO:22)

Figure 1J**11.6.1 Heavy Chain DNA**

```

GGCGTGGTCC AGCCTGGGAG GTCCCTGAGA CTCTCCTGTG CAGCGTCTGG 50
ATTCACCTTC AGTAGCTATG GCATGCACTG GGTCCGCCAG GCTCCAGGCA 100
AGGGGCTGGA GTGGGTGGCA GTTATATGGT ATGATGGAAG TCATAAATAC 150
TATGCAGACT CCGTGAAGGG CCGATTACAC ATCTCCAGAG ACAATTCCAA 200
GAACACGCTG TATCTGCAAA TGAACAGCCT GAGAGCCGAG GACACGGCTG 250
TGTATTACTG TGCAGAGAGG GCTGTAGTAG TACCAGCTGC TATGGACGTC 300
TGGGGCCAAG GGACCACGGT CACCGTCTCC TCAGCCTCCA CCAAGGGCCC 350
ATCGGTCTTC CCCCTGGCGC CCTGCTCCAG GAGCACCTCC GAGAGCACAG 400
CGGCCCTGGG CTGCCTGGTC AAGGACTACT TCCCCGAACC GGTGACGGTG 450
T                                                                 451

```

(SEQ ID NO:36)

11.6.1 Heavy Chain Protein

```

GVVQPGRSLR LSAAAGSFTF SSYGMHWVRQ APGKGLEWVA VIWYDGS HKY 50
YADSVKGRFT ISRDNSKNTL YLQMNSLRAE DTAVYYCARG AVVVPAAMDV 100
WGQGTTVTVS SASTKGPSVF PLAPCSRSTS ESTAALGCLV KDYFPEPVTV 150
S                                                                 151

```

(SEQ ID NO:10)

11.6.1 Kappa Chain DNA

```

ACCCAGTCTC CATCCTCCCT GTCTGCATCT GTAGGAGACA GAGTCACCAT 50
CACTTGCCGG GCAAGTCAGA ACATTAGCAG GTATTTAAAT TGGTATCAAC 100
AGAAACCAGG GAAAGCCCCT AAGTTCCTGA TCTATGTTGC ATCTATTTTG 150
CAAAGTGGGG TCCCATCAGG GTTCAGTGCC AGTGGATCTG GGCCAGATTT 200
CACTCTNACC ATCAGCAGTC TGCAACCTGA AGATTTTGCA ACTTACTACT 250
GTCAACAGAG TTACAGTACC CCATTCACTT TCGGCCCTGG GACCAAAGTG 300
GATATCAAAC GAACTGTGGC TGCACCATCT GTCTTCATCT TCCCGCCATC 350
TGATGAGCAG TTGAAATCTG GAACTGCCTC TGTTGTGTGC CTGCTGAATA 400
AC                                                                 402

```

(SEQ ID NO:49)

11.6.1 Kappa Chain Protein

```

TQSPSSLSAS VGDRVITICR ASQNISRYLN WYQQKPGKAP KFLIYVASIL 50
QSGVPSGFS SSGSPDFTLT ISSLQPEDFA TYQCQSYST PFTFGPGTKV 100
DIKRTVAAPS VFIFPPSDEQ LKSGTASVVC LLNN                      134

```

(SEQ ID NO:23)

Figure 1K**11.7.1 Heavy Chain DNA**

```

GTGGTCCAGC CTGGGAGGTC CCTGAGACTC TCCTGTGCAG CGTCTGGATT 50
CACCTTCAGT AGCNGTGGCA TGCCTGGGT CCGCCAGGCT CCAGGCAAGG 100
GGCTGGAGTG GGTGGCAGTT ATATGGTCTG ATGGAAGTCA TAAATACTAT 150
GCAGACTCCG TGAAGGGCCG ATTCACCATC TCCAGAGACA ATTCCAAGAA 200
CACGCTGTAT CTGCAAATGA ACAGCCTGAG AGCCGAGGAC ACGGCTGTGT 250
ATTACTGTGC GAGAGGAACT ATGATAGTAG TGGGTACCCT TGACTACTGG 300
GGCCAGGGAA CCCTGGTCAC CGTCTCCTCA GCCTCCACCA AGGGCCCATC 350
GGTCTTCCCC CTGGCGCCCT GCTCCAGGAG CACCTCCGAG AGCACAGCGG 400
CCCTGGGCTG CCTGGTCAAG GACTACTTCC CCGAACCG 438

```

(SEQ ID NO:37)

11.7.1 Heavy Chain Protein

```

VVQPGRSLRL SCAASGFTFS SXGMHWVRQA PGKGLEWVAV IWSDGSHKYY 50
ADSVKGRFTI SRDNSKNTLY LQMNSLRAED TAVYYCARGT MIVVGTLDYW 100
QGQTLVTVSS ASTKGPSVFP LAPCSRSTSE STAALGCLVK DYFPEP 146

```

(SEQ ID NO:11)

11.7.1 Kappa Chain DNA

```

ACCCAGTCTC CATCCTCCCT GTCTGCATCT GTAGGAGACA GAGTCACCAT 50
CACTTGCCGG GCAAGTCAGA GCATTTGCAA CTATTTAAAT TGGTATCAGC 100
AGAAACCAGG AAAAGCCCCT AGGGTCCTGA TCTATGCTGC ATCCAGTTTG 150
CAAGGTGGGG TCCCGTCAAG GTTCAGTGGC AGTGGATCTG GGACAGATTG 200
CACTCTCACC ATCAGCAGTC TGCAACCTGA AGATTTTGCA ACTTACTACT 250
GTCAACAGAG TTACACTACC CCATTCACTT TCGGCCCTGG GACCAGAGTG 300
GATATCGAAC GAACTGTGGC TGCACCATCT GTCTTCATCT TCCCGCCATC 350
TGATGAGCAG TTGAAATCTG GAACTGCCTC TGTGTGTGTC CTGCTGAATA 400
ACTTCTATCC CAGAGAGGCC AAAGTACAGT GGAAGGTGGA TAACGCCTAT 450
T 451

```

(SEQ ID NO:50)

11.7.1 Kappa Chain Protein

```

TQSPSSLSAS VGDRVTTITCR ASQSICNYLN WYQQKPGKAP RVLIIYAASSL 50
QGGVPSRFSG SGSGIDCTLT ISSLQPEDFA TYQCQSYIT PFTFGPGTRV 100
DIERTVAAPS VFIFPPSDEQ LKSGTASVVC LLNMFYPREA KVQWKVDNAY 150

```

(SEQ ID NO:24)

Figure 1L**12.3.1.1 Heavy Chain DNA**

TCCTGTGCAG	CGTCTGGATT	CACCTTCAGT	TACTATGGCG	TCTGGGGGAG	50
GCGTGGTCCA	GCCTGGGAGG	TCCCTGAGAC	TCTCCTGTGC	AGCGTCTGGA	100
TTCACCTTCA	GTAGCTATGG	CGTGCACCTG	GTCCGCCAGG	CTCCAGGCAA	150
GGGGCTGGAG	TGGGTGGCAG	TTATATGGTA	TGATGGAAGT	AATAAATACT	200
ATGCAGACTC	CGTGAAGGGC	CGATTACCA	TCTCCAGAGA	CAATTCCAAG	250
AGCACGCTGT	ATCTGCAAAT	GAACAGCCTG	AGAGCCGAGG	ACACGGCTGT	300
GTATTATTGT	GCGAGAGACT	CGTATTACGA	TTTTTGGAGT	GGTCGGGGCG	350
GTATGGACGT	CTGGGGCCAA	GGGACCACGG	TCACCGTCTC	CTCAGCCTCC	400
ACCAAGGGCC	CATCGGTCTT	CCCCCTGGCG	CCCTGCTCCA	GGAGCACCTC	450
CGAGAGCACA	GCGGCCCTGG	GCTGCCTGGT	CAAGGACTAC	TTCCCCGAAC	500
CGGTGACGGT	GTCGTGGAAC	TCAGGCGCTC	TGACCAGCGG	CGTGCACACC	550
TTCCAGCTG	TC				562

(SEQ ID NO:38)

12.3.1.1 Heavy Chain Protein

SGGGVVQPGR	SLRLSCAASG	FTFSSYGVHW	VRQAPGKGLE	WVAVIWDGS	50
NKYYADSVKG	RFTISRDNKS	STLYLQMNSL	RAEDTAVYYC	ARDSYYDFWS	100
GRGMDVWGQ	GTTVTVSSAS	TKGPSVFPLA	PCSRSTSEST	AALGCLVKDY	150
FPEPVTVSWN	SGALTSGVHT	FPAV			174

(SEQ ID NO:12)

12.3.1.1 Kappa Chain DNA

CCACTCTCCC	TGCCCCTCAC	CCTTGGACAG	CCGGCCTCCA	TCTCCTGCAG	50
GTCTAGTCAA	AGCCTCGTAT	ACAGTGATGG	AAACACCTAC	TTGAATTGGT	100
TTCAGCAGAG	GCCAGGCCAA	TCTCCAAGGC	GCCTAATTTA	TAAGGTTTCT	150
AACTGGGACT	CTGGGGTCCC	AGACAGATTC	AGCGGCAGTG	GGTCAGGCAC	200
TGATTTTACA	CTGAAAATCA	GCAGGGTGGA	GGCTGAGGAT	GTTGGGGTTT	250
ATTACTGCAT	GCAAGGTTCA	CACTGGCCTC	CGACGTTTCG	CCAAGGGACC	300
AAGGTGGA	TCAAACGAAC	TGTGGCTGCA	CCATCTGTCT	TCATCTTCCC	350
GCCATCTGAT	GAGCAGTTGA	AATCTGGAAC	TGCCTCTGTT	GTGTGCCTGC	400
TGAATAACTT	CTATCCCAC				419

(SEQ ID NO:51)

12.3.1.1 Kappa Chain Protein

PLSLPVTLGQ	PASISCRSSQ	SLVYSDGNTY	LNWFQQRPGQ	SPRRLIYKVS	50
NWDSGVPDRF	SGSGSGTDFT	LKISRVEAED	VGVIYCMQGS	HWPPTFGQGT	100
KVEIKRTVAA	PSVFIFPPSD	EQLKSGTASV	VCLLNNFYP		139

(SEQ ID NO:25)

Figure 1M**12.9.1.1 Heavy Chain DNA**

```

GTCCAGCCTG GGAGGTCCCT GAGACTCTCC TGTGCAGCGT CTGGATTAC 50
CTTCAGTAAC TATGCCATGC ACTGGGTCCG CCAGGCTCCA GGCAAGGGGC 100
TGGAGTGGGT GGTAGTTATT TGGCATGATG GAAATAATAA ATACTATGCA 150
GAGTCCGTGA AGGGCCGATT CACCATCTCC AGAGACAATT CCAAGAACAC 200
GCTGTATCTG CAAATGAACA GCCTGAGAGC CGAGGACACG GCTGTATATT 250
ACTGTGCGAG AGATCAGGGC ACTGGCTGGT ACGGAGGCTT TGAATTCTGG 300
GGCCAGGGAA CCCTGGTCAC CGTCTCCTCA GCCTCCACCA AGGGCCCATC 350
GGTCTTCCCC CTGGCGCCCT GCTCCAGGAG CACCTCCGAG AGCACAGCGG 400
CCCTGGGCTG CCTGGTCAAG GACTACTTCC CCGAACCGGT GACGGTGTGC 450
TGGAACTCAG GCGCTCTGAC CAGCGGCGTG CACACCTTCC 490

```

(SEQ ID NO:39)

12.9.1.1 Heavy Chain Protein

```

VQPGRSLRLS CAASGFTFSN YAMHWVRQAP GKGLEWVVVI WHDGNNKYIA 50
ESVKGRFTIS RDNSKNTLYL QMNSLRAEDT AVYYCARDQG TGWYGGFDFW 100
GQGTLVTVSS ASTKGPSVFP LAPCSRSTSE STAALGCLVK DYFPEPVTVS 150
WNSGALTSGV HTF 163

```

(SEQ ID NO:13)

12.9.1.1 Kappa Chain DNA

```

CCTGGAGAGC CGGCTTCCAT CTCTTGCAGG TCTAGTCAGA GCCTCCTGCA 50
TAGTAATGGA TACAACTATT TGGATTGGTA CCTGCAGAAG CCAGGACAGT 100
CTCCACAGCT CCTGATCTAT TTGGGTCTTA ATCGGGCCTC CGGGGTCCCT 150
GACAGGTTCA GTGGCAGTGG ATCAGGCACA GATTTTACAC TGAAACTCAG 200
CAGAGTGGAG GCTGAGGATG TTGGGGTTTA TTACTGCATG CAAGCTCTAC 250
AAACTCCTCT CACTTTCGGC GGAGGGACCA AGGTGGAGAT CAAACGAACT 300
GTGGCTGCAC CATCTGTCTT CATCTTCCCG CCATCTGATG AGCAGTTGAA 350
ATCTGGAAGT GCCTCTGTTG TGTGCCTGCT GAATAACTTC TATCCCAGAR 400
AGGCCAAAGT ACATTCCAT 419

```

(SEQ ID NO:52)

12.9.1.1 Kappa Chain Protein

```

PGEPASISCR SSQSLLSNG YNYLDWYLQK PGQSPQLLIY LGSNRASGVP 50
DRFSGSGSGT DFTLKLRSVE AEDVGYYCM QALQTPLTFG GGTKVEIKRT 100
VAAPSVFIFP PSDEQLKSGT ASVVCLLNMF YPR 133

```

(SEQ ID NO:26)

Figure 2A

CDR	DP5 0	3.1.1	4.1.1	4.8.1	4.10. 2	4.13. 1	4.14. 3	6.1.1	11.2. 1	11.6. 1	11.7. 1	12.3. 1.1	12.9. 1.1
								G					
	G	G	G	G	G			G	G	G		G	
	V	V	V	V	V			V	V	V	V	V	
	V	V	V	V	V			V	V	V	V	V	V
	Q	Q	Q	Q	Q			E	Q	Q	Q	Q	Q
	P	P	P	P	P	P	P	P	P	P	P	P	P
	G	G	G	G	G	G	G	G	G	G	G	G	G
	R	R	R	R	R	R	R	R	R	R	R	R	R
	S	S	S	S	S	S	S	S	S	S	S	S	S
	L	L	L	L	L	L	L	L	L	L	L	L	L
	R	R	R	R	R	R	R	R	R	R	R	R	R
	L	L	L	L	L	L	L	L	L	L	L	L	L
	S	S	S	S	S	S	S	S	S	S	S	S	S
	C	C	C	C	C	C	C	C	C	C	C	C	C
	A	A	V	T	V	A	A	T	A	A	A	A	A
	A	A	A	A	A	A	A	A	A	A	A	A	A
	S	S	S	S	S	S	S	S	S	S	S	S	S
	G	G	G	G	G	G	G	G	G	G	G	G	G
	F	F	F	F	F	F	F	F	F	F	F	F	F
	T	T	T	T	I	T	T	T	T	T	T	T	T
	F	F	F	F	F	F	F	F	F	F	F	F	F
CDR1	S	S	S	S	S	S	S	S	S	S	S	S	S
	S	S	S	N	S	S	S	S	S	S	S	S	N
	Y	Y	H	Y	H	H	H	Y	Y	Y	C	Y	Y
	G	G	G	G	G	G	G	G	G	G	G	G	A
	M	M	M	M	I	I	I	M	M	M	M	V	M
	H	H	H	H	H	H	H	H	H	H	H	H	H
	W	W	W	W	W	W	W	W	W	W	W	W	W
	V	V	V	V	V	V	V	V	V	V	V	V	V
	R	R	R	R	R	R	R	R	R	R	R	R	R
	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
	A	A	A	A	A	A	A	A	A	A	A	A	A
	P	P	P	P	P	P	P	P	P	P	P	P	P
	G	G	G	G	G	G	G	G	G	G	G	G	G
	K	K	K	K	K	K	K	K	K	K	K	K	K
	G	G	G	G	G	G	G	G	G	G	G	G	G
	L	L	L	L	L	L	L	L	L	L	L	L	L
	E	E	E	E	E	E	E	E	E	E	E	E	E
	W	W	W	W	W	W	W	W	W	W	W	W	W
	V	V	V	V	V	V	V	V	V	V	V	V	V
	A	A	A	A	A	A	A	A	A	A	A	A	V
	V	V	V	V	V	V	V	V	V	V	V	V	V
	I	I	I	I	I	I	I	I	I	I	I	I	I
	W	W	W	W	W	W	W	W	W	W	W	W	W
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	S	Y	H
	D	D	D	D	D	D	D	D	D	D	D	D	D
	G	G	G	G	G	G	G	G	G	G	G	G	G
CDR2	S	S	R	S	R	R	R	S	S	S	S	S	N

Figure 2B

CDR	DP5 0	3.1.1	4.1.1	4.8.1	4.10. 2	4.13. 1	4.14. 3	6.1.1	11.2. 1	11.6. 1	11.7. 1	12.3. 1.1	12.9. 1.1
	N	N	N	N	N	N	N	N	N	H	H	N	N
	K	K	K	K	K	K	K	K	K	K	K	K	K
	Y	Y	Y	H	D	D	D	H	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	A	A	A	G	A	A	A	A	A	A	A	A	A
	D	D	D	D	D	D	D	D	D	D	D	D	E
	S	S	S	S	S	S	S	S	S	S	S	S	S
	V	V	V	V	V	V	V	A	V	V	V	V	V
	K	K	K	K	K	K	K	K	K	K	K	K	K
	G	G	G	G	G	G	G	G	G	G	G	G	G
	R	R	R	R	R	R	R	R	R	R	R	R	R
	F	F	F	F	F	F	F	F	F	F	F	F	F
	T	T	T	T	T	T	T	T	T	T	T	T	T
	I	I	I	I	I	I	I	I	I	I	I	I	I
	S	S	S	S	S	S	S	S	S	S	S	S	S
	R	R	R	S	R	R	R	R	R	R	R	R	R
	D	D	D	D	D	D	D	D	D	D	D	D	D
	N	N	N	N	N	N	N	N	N	N	N	N	N
	S	S	S	S	S	S	S	S	S	S	S	S	S
	K	K	K	K	K	K	K	K	K	K	K	K	K
	N	N	N	N	N	N	K	N	N	N	N	S	N
	T	T	T	T	T	T	T	T	T	T	T	T	T
	L	L	L	L	L	L	L	L	L	L	L	L	L
	Y	Y	F	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	L	L	L	L	L	L	L	L	L	L	L	L	L
	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
	M	M	M	M	M	M	M	M	M	M	M	M	M
	N	N	N	N	N	N	N	N	N	N	N	N	N
	S	S	S	S	S	S	S	S	S	S	S	S	S
	L	L	L	L	L	L	L	L	L	L	L	L	L
	R	R	R	R	R	R	R	R	R	R	R	R	R
	A	A	A	A	A	A	A	A	A	A	A	A	A
	E	E	E	E	E	E	E	E	E	E	E	E	E
	D	D	D	D	D	D	D	D	D	D	D	D	D
	T	T	T	T	T	T	T	T	T	T	T	T	T
	A	A	A	A	A	A	A	A	A	A	A	A	A
	V	V	V	V	V	V	V	V	V	V	V	V	V
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	C	C	C	C	C	C	C	C	C	C	C	C	C
	A	A	A	A	A	A	A	A	A	A	A	A	A
	R	R	R	R	R	R	R	R	R	R	R	R	R
		G	G	G	V	V	V	A	D	G	G	D	D
		A	G	E	A	A	A	G	P	A	T	S	Q
		R	H	R	P	P	P	L	R	V	M	Y	G
		I	F	L	L	L	L	L	G	V	I	Y	T
CDR3		I	G	G	G	G	G	G	A	V	V	D	G

Figure 2C

CDR	DP5 0	3.1.1	4.1.1	4.8.1	4.10. 2	4.13. 1	4.14. 3	6.1.1	11.2. 1	11.6. 1	11.7. 1	12.3. 1.1	12.9. 1.1
		T	P	S	P	P	P	Y	T	P	V	F	W
		P	F	Y	L	L	L	F	L	A	G	W	Y
		C	D	F	D	D	D	D	Y	A	T	S	G
		M	Y	D	Y	Y	Y	Y	Y	M	L	G	G
		D	W	Y	W	W	W	W	Y	D	D	R	F
		V	G	W	G	G	G	G	Y	V	Y	G	D
		W	Q	G	Q	Q	Q	Q	Y	W	W	G	F
		G	G	Q	G	G	G	G	G	G	G	M	W
		Q	T	G	T	T	T	T	M	Q	Q	D	G
		G	L	T	L	L	L	L	D	G	G	V	Q
		T	V	L	V	V	V	V	V	T	T	W	G
		T	T	V	T	T	T	T	W	T	L	G	T
		V	V	T	V	V	V	V	G	V	V	Q	L
		T	S	V	S	S	S	S	Q	T	T	G	V
		V	S	S	S	S	S	S	G	V	V	T	T
		S	A	S	A	A	A	A	T	S	S	T	V
		S	S	A	S	S	S	S	T	S	S	V	S
		A	T	S	T	T	T	T	V	A	A	T	S
		S	K	T	K	K	K	K	T	S	S	V	A
		T	G	K	G	G	G	G	V	T	T	S	S
		K	P	G	P	P	P	P	S	K	K	S	T
		G	S	P	S	S	S	S	S	G	G	A	K
		P	V	S	V	V	V	V	A	P	P	S	G
		S	F	V	F	F	F	F	S	S	S	T	P
		V	P	F	P	P	P	P	T	V	V	K	S
		F	L	P	L	L	L	L	K	F	F	G	V
		P	A	L	A	A	A	A	G	P	P	P	F
		L	P	A	P	P	P	P	P	L	L	S	P
		A	C	P	C	C	C	C	S	A	A	V	L
		P	S	C	S	S	S	S	V	P	P	F	A
		C	R	S	R	R	R	R	F	C	C	P	P
		S	S	R	S	S	S	S	P	S	S	L	C
		R	T	S	T	T	T	T	L	R	R	A	S
		S	S	T	S	S	S	S	A	S	S	P	R
		T	E	S	E	E	E	E	P	T	T	C	S
		S	S	E	S	S	S	S	C	S	S	S	T
		E	T	S	T	T	T	T	S	E	E	R	S
		S	A	T	A	A	A	A	R	S	S	S	E
		T	A	A	A	A	A	A	S	T	T	T	S
		A	L	A	L	L	L	L	T	A	A	S	T
		A	G	L	G	G	G	G	S	A	A	E	A
		L	C	G	C	C	C	C	E	L	L	S	A
		G	L	C	L	L	L	L	S	G	G	T	L
		C	V	L	V	V	V		T	C	C	A	G
		L	K	V	K	K	K		A	L	L	A	C
		V	D	K	D	D	D		A	V	V	L	L
		K	Y	D	Y	Y	Y		L	K	K	G	V
		D	F	Y	F	F	F		G	D	D	C	K
		Y	P	F	P	P	P		C	Y	Y	L	D

Figure 2D

[illegible]

Figure 3

DP-65 or 4-31 gene product

VSGGSISSGGYYWSWIRQHPGKGLEWIGYIYYSGSTYYNPSLKSRVTISVDTSKNQFSLKLSVTAADTAVYYCAR
 CDR1 CDR2

2.1.3 Heavy Chain Protein

SGPGLVKPSQILSLTCTVSGGSISSGGHYWSWIRQHPGKGLEWIGYIYYIGNTYYNPSLKSRVTISVDTSKNQFSLKLSVTAADTAVYYCAR
 CDR1 CDR2
 DSGDYXGIDYWGQGTITVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQ
 CDR3

Figure 4

A27 Gene Product

EIVLTQSPGTLSPGERATLSCRASQSVSSSYLA WYQQKPGQAPRLIYGASSRATGIPDRFSGSGGTDFLTISRLEPEDFAVYYCQOYGSSP
 CDR1 CDR2 CDR3

4.1.1 Kappa Chain Protein

QSPGTLSPGERATLSCRASQSISSSELA WYQQRPQAPRLIYGASSRATGIPDRFSGSGGTDFLTISRLEPEDFAVYYCQOYGTSPWT
 CDR1 CDR2 CDR3
 FGQGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAK

4.8.1 Kappa Chain Protein

QSPGTLSPGERATLSCRISQVSSSYLA WYQQKPGQAPRLIYGASSRATGIPDRFSGSGGTDFLTISRLEPEDFAVYYCQOYGISPET
 CDR1 CDR2 CDR3
 FGGGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQ

4.14.3 Kappa Chain Protein

GTLSPGERATLSCRASQSVSSSYLA WYQQKPGQAPRLIYGASSRATGIPDRFSGSGGTDFLTISRLEPEDFAVYYCQOYGRSPET
 CDR1 CDR2 CDR3
 FGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQ

6.1.1 Kappa Chain Protein

QSPGTLSPGERATLSCRASQSVSSSYLA WYQQKPGQAPRLIYGYSRATGIPDRFSGSGGTDFLTISRLEPEDFAVYYCQOYGISPET
 CDR1 CDR2 CDR3
 FGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQ

4.10.2 Kappa Chain Protein

SPGTLSPGERATLSCRASQSISSSELA WYQQKPGQAPRLIYRISRATGIPDRFSGSGGTDFLTISRLEPEDFALYYCQOYGTSPET
 CDR1 CDR2 CDR3
 FGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQ

4.13.1 Kappa Chain Protein

QSPGTLSPGERATLSCRASQSVSSSYLA WYQQKPGQAPRLIYGASSRATGIPDRFSGSGGTDFLTISRLEPEDFAVYYCQOYGRSPET
 CDR1 CDR2 CDR3
 FGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKGG

Figure 5

012 Gene Product

DIQMTQSPSSLSASVGDRVTITCRASQISSTYLNWYQQKPGKAPKLLIYAASSLSQGVPSRFRSGSGTDFLTISLQPEDFATYYCQQQSYSTPEI
 CDR1 CDR2 CDR3

3.1.1 Kappa Chain Protein

QSPSSLSASVGDRVTITCRASQISNTYLIWYQQKPGKAPNFKLSATSILOSGVPSRFRSGSGTNFTLTINSLHPEDFATYYCQQQSYSTPEI
 CDR1 CDR2 CDR3
 FGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSG

11.2.1 Kappa Chain Protein

PSSLSASVGDRVTITCRASQISNTYLDWYQQKPGKAPKLLIYAASSLSQGVPSRFRSGSGTDFLTISLQPEDFATYYCQQQSYSTPEI
 CDR1 CDR2 CDR3
 FGPGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKV

11.6.1 Kappa Chain Protein

TQSPSSLSASVGDRVTITCRASQISRYLNWYQQKPGKAPKFLIYVASILQSGVPSGFSASGSGPDFTLTISLQPEDFATYYCQQQSYSTPEI
 CDR1 CDR2 CDR3
 FGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNN

11.7.1 Kappa Chain Protein

TQSPSSLSASVGDRVTITCRASQISNTYLNWYQQKPGKAPRVLIYAASSLSQGVPSRFRSGSGIDCTLTISLQPEDFATYYCQQQSYSTPEI
 CDR1 CDR2 CDR3
 FGPGTRVDIERTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNAY

Figure 6

A10/A26 Gene Product

EVL TQSPDFQSVTPKEKVTITCRASQSIGSSLHWYQQKPDQSPKLLIKYASQSESGVPSRFSGSGGTDFLTINSLEAEDAATYYCHQSSSLPQ
CDR1 CDR2 CDR3

2.1.3 Kappa Chain Protein

SPDFQSVTPKEKVTITCRASQSIGSSLHWYQQKPDQSPKLLIKYASQSESGVPSRFSGSGGTDFLTINSLEAEDAATYYCHQSSSLPLT
CDR1 CDR2 CDR3
FGGGTKVEIKRTVAAPSVFIFFPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQE

Figure 7

A17 Gene Product

DVVMTQSPVTLGQPASISCRSSQSLYYSDGNITVLNWFQQRPGQSPRRLIYKVSNNRDSGVDPDRFSGSGGTDFTLKISRVEAEDVGYYCMQGHWP
CDR1 CDR2 CDR3

12.3.1 Kappa Chain Protein

PLSLPVTLGQPASISCRSSQSLYYSDGNITVLNWFQQRPGQSPRRLIYKVSNNWDSGVDPDRFSGSGGTDFTLKISRVEAEDVGYYCMQGSHPPT
CDR1 CDR2 CDR3
FGQGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYP

Figure 8

A3/A19 Gene Product

DIVMTQSP¹LSLPVTPGEPASISCRSSQSL²LHSNGYN³LDWYLQKPGQSPQLLI⁴YLGSNRASGV⁵PD⁶RFSGSGGT⁷DF⁸TLKISRVEAEDVG⁹VYYCMQALQ¹⁰TP
CDR1 CDR2 CDR3

12.9.1 Kappa Chain Protein

PGEPASISCRSSQSL²LHSNGYN³LDWYLQKPGQSPQLLI⁴YLGSNRASGV⁵PD⁶RFSGSGGT⁷DF⁸TLKISRVEAEDVG⁹VYYCMQALQ¹⁰TPLT
CDR1 CDR2 CDR3
FGGGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYP

Figure 9 Amino-terminal amino acid sequence analysis

Hybridoma	Light chain	MW
CT2.1.3	ND	ND
CT3.1.1	NH ₂ -DIQMTQSPSSLSASVGDRV	26,119
CT4.1.1	NH ₂ -EIVLTQSPGTLSPGERAT	23,917
CT4.8.1	NH ₂ -EIVLTQSPGTLSPGERAT	23,617
CT4.9.1	NH ₂ -DIQMTQSPSSVSASVGDRV	23,702
CT4.10.2	NH ₂ -TGEFVLTQSPGTLSPGER (60%) NH ₂ -EFVLTQSPGTLSPGERAT (40%)	24,101
CT4.14.3	NH ₂ -EIVLTQSPGTLSPGERAT	23,770
CT4.13.1	NH ₂ -EIVLTQSPGTLSPGERAT	23,802
CT6.1.1	NH ₂ -EIVLTQSPGTLSPGERAT	23,747

Hybridoma	Heavy chain	MW
CT2.1.3	ND	ND
CT3.1.1	NH ₂ -Blocked. Following treatment with Pyroglutamate Aminopeptidase: NH ₂ -pQ-VQLVESGGGVVQPGRSLRLS (major sequence~80%) NH ₂ -PEVQF...(minor sequence~20%)	51,813
CT4.1.1	NH ₂ -Blocked. Following treatment with Pyroglutamate Aminopeptidase: NH ₂ -pQ-VQLVESGGGVVQPGRSLRLS (major sequence~65%) NH ₂ -PEVQFNWYVD...(minor sequence~35%)	51,502
CT4.8.1	NH ₂ -Blocked. Following treatment with Pyroglutamate Aminopeptidase: NH ₂ -pQ-VQLVESGGGVVQPG(R)SL... (major sequence~60%) NH ₂ -PEVQFNWY...(minor sequence~40%)	51,597
CT4.9.1	NH ₂ -EVQLLES GGGLVQPGSLRL (free amino terminus)	51,437
CT4.10.2	NH ₂ -Blocked. Following treatment with Pyroglutamate Aminopeptidase: NH ₂ -pQ-VQLVESGGGVVQPGRSLRLS (major sequence~60%) NH ₂ -PEVQFNWYVD...(minor sequence~40%)	51,502
CT4.14.3	NH ₂ -Blocked. Following treatment with Pyroglutamate Aminopeptidase: NH ₂ -pQ-VQLVESGGGVVQPGRSL(R)(L)(S) (major sequence~65%) NH ₂ -PEVQFNWYV...(minor sequence~35%)	51,293
CT4.13.1	NH ₂ -Blocked. Following treatment with Pyroglutamate Aminopeptidase: NH ₂ -pQ-VQLVESGGGVVQPGRSLRLS (major sequence~75%) NH ₂ -PEVQFN...(minor sequence~25%)	51,305
CT6.1.1	NH ₂ -Blocked. Following treatment with Pyroglutamate Aminopeptidase: NH ₂ -pQ-VQLVESGGGVVEPGRSLRLS* (major sequence~65%) NH ₂ -PEVQFNWYVD... (minor sequence~35%)	51,476

* This heavy chain sequence is similar to the other blocked heavy chain sequences except for a unique Gln->Glu change at position 13.

Figure 10A

antibody	Conc. (mg/ml) (Ec1.58)		IEF	SDS-PAGE		SEC	reported MALDI		n-term. seq. (lc)*	
	reported	observed		(+) b-me	(-) b-me		Hc	Lc	reported	observed
CT 3.1.1	1.1	1.57	smear	50 & 28 kDa	6 bands	139,400	51,813	26,119	DIQMTQSP (SEQ ID NO: 141)	DIQMTQSP (SEQ ID NO: 141)
CT 4.1.1	1.54	1.65	smear	50 & 24 kDa	6 bands	79,900	51,502	23,917	EIVLTQSP (SEQ ID NO: 142)	EIVLTQSP (SEQ ID NO: 142)
CT 4.8.1	1.52	1.54	4 bands	50 & 24 kDa	6 bands	110,300	51,597	23,617	EIVLTQSP (SEQ ID NO: 143)	EIVLTQSP (SEQ ID NO: 143)
CT 4.10.2	1.29	1.77	4 bands	50 & 25 kDa	6 bands	107,200	51,502	24,101	**	***
CT 4.14.3	1.75	1.65	smear	50 & 24 kDa	6 bands	82,800	51,293	23,770	EIVLTQSP (SEQ ID NO: 146)	EIVLTQSP (SEQ ID NO: 146)
CT 6.1.1	1.36	1.3	4 bands	50 & 24 kDa	6 bands	101,100	51,476	23,747	EIVLTQSP (SEQ ID NO: 147)	EIVLTQSP (SEQ ID NO: 147)
* all heavy chains n-terminally blocked (not sequenced in-house)										
** mixed sequence reported: TGEFVLTQSP (60) (SEQ ID NO: 144) & EFVLTQSP (40) (SEQ ID NO: 145)										
*** mixed sequence observed TGEFVLTQSP (60) (SEQ ID NO: 144) & EFVLTQSP (40) (SEQ ID NO: 145)										

$IOD_{280nm} = 0.633 \text{ mg/ml}$
 Ec-1.58

Figure 10B

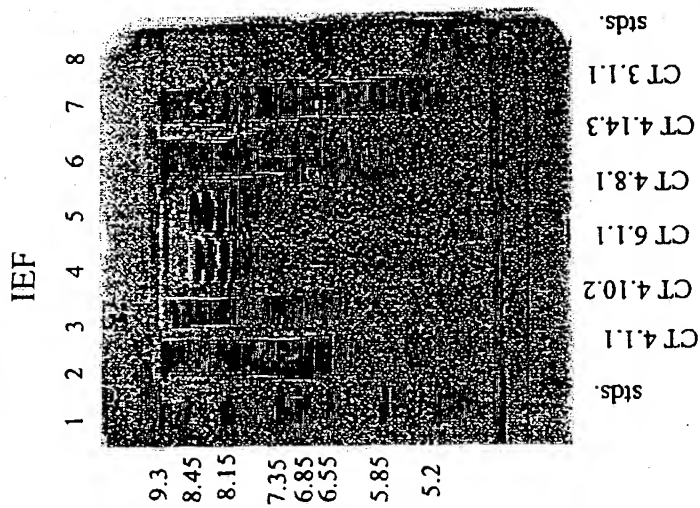


Figure 10C

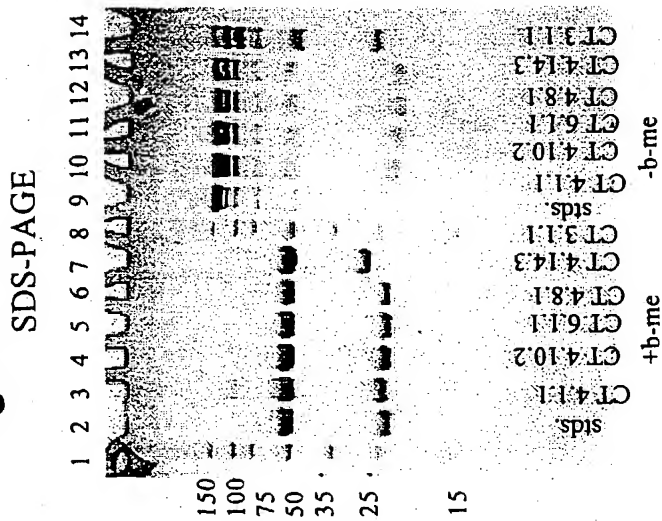


Figure 10D

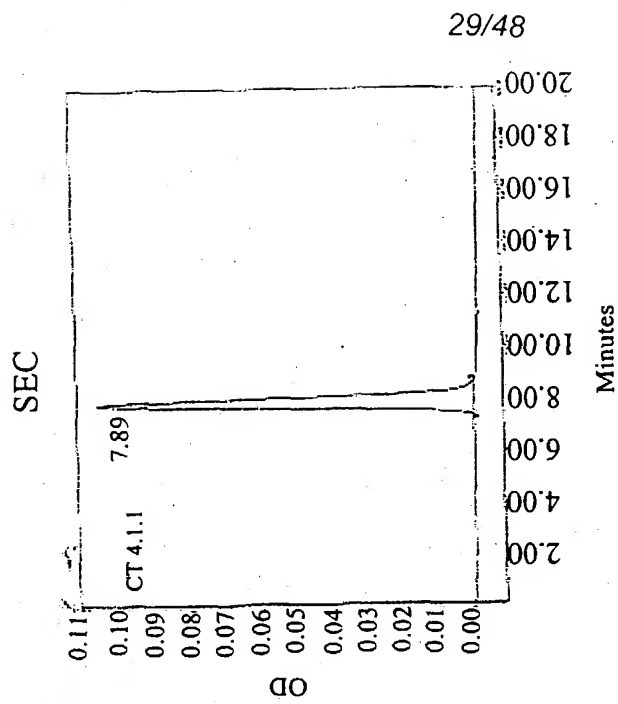
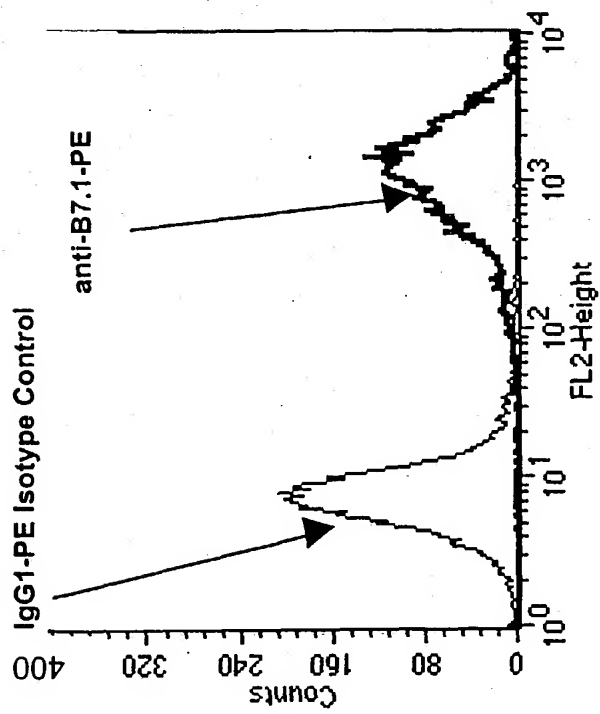
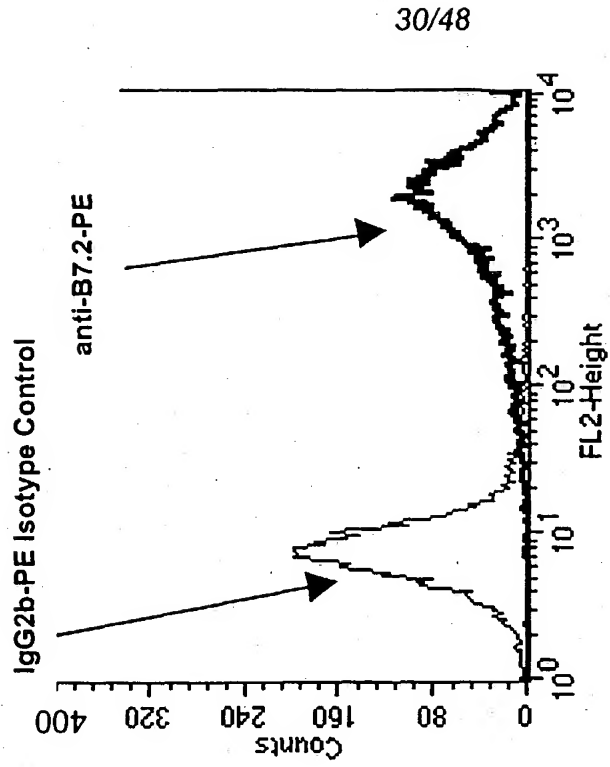


Figure 11A



99.7% B7.1 pos.

Figure 11B



99.7% B7.2 pos.

Expression of B7.1 and B7.2 on Raji Cells

30/48

Figure 12

**Enhancement of Human T Cell IL-2 Production
Induced by Anti-CTLA4 XenoMouse MAbs in
the 72 Hour T Blast / Raji Assay**

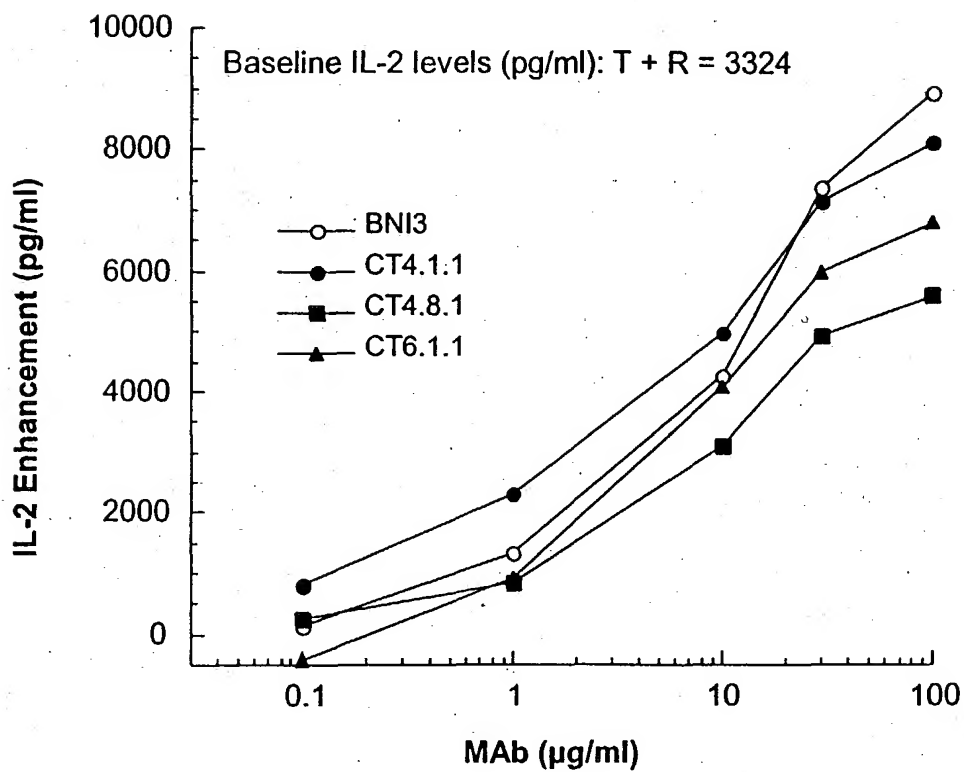


Figure 13

**Enhancement of Human T Cell IFN- γ Production
Induced by Anti-CTLA4 XenoMouse MAbs in
the 72 Hour T Blast / Raji Assay**

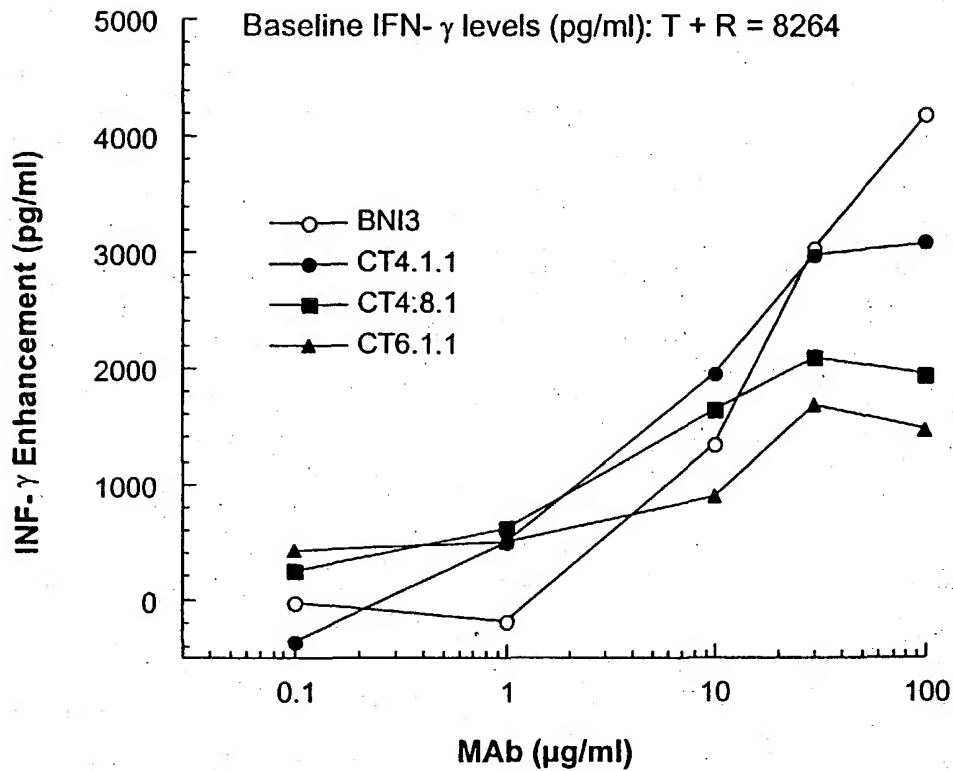


Figure 14

**Enhancement of Human T Cell IL-2 Production
Induced by Anti-CTLA4 XenoMouse MABs in
the 72 Hour T Blast / Raji Assay (6 Donors)**

Baseline IL-2 levels (pg/ml): T + R = 9187, T + R + IgG2a = 9389, T + R + IgG2 = 8509

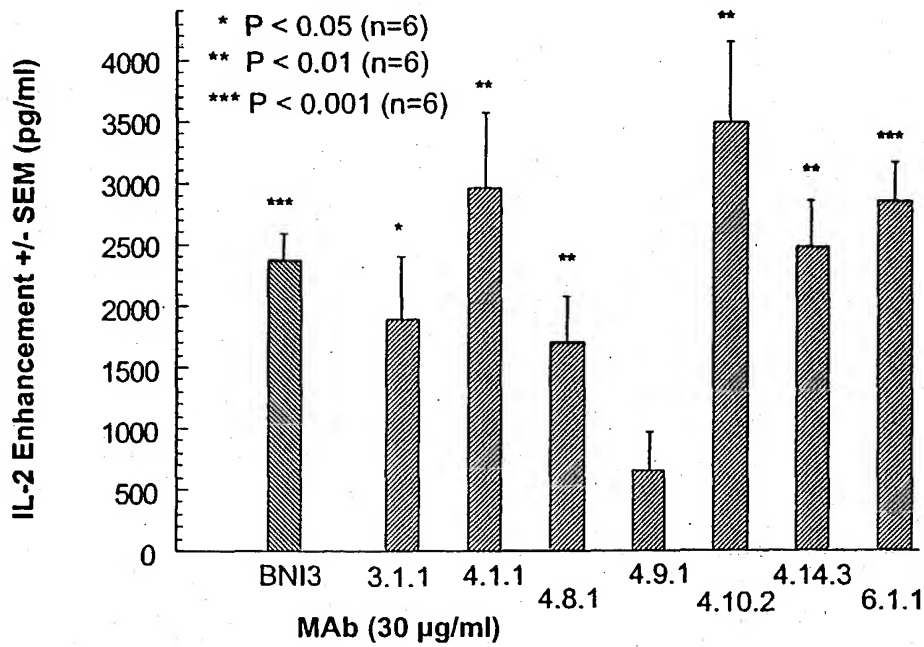


Figure 15

**Enhancement of Human T Cell IFN- γ Production
Induced by Anti-CTLA4 XenoMouse MAbs in
the 72 Hour T Blast / Raji Assay (6 Donors)**
Baseline IFN- γ levels (pg/ml): T + R = 4780, T + R + IgG2a = 4868, T + R + IgG2 = 4331

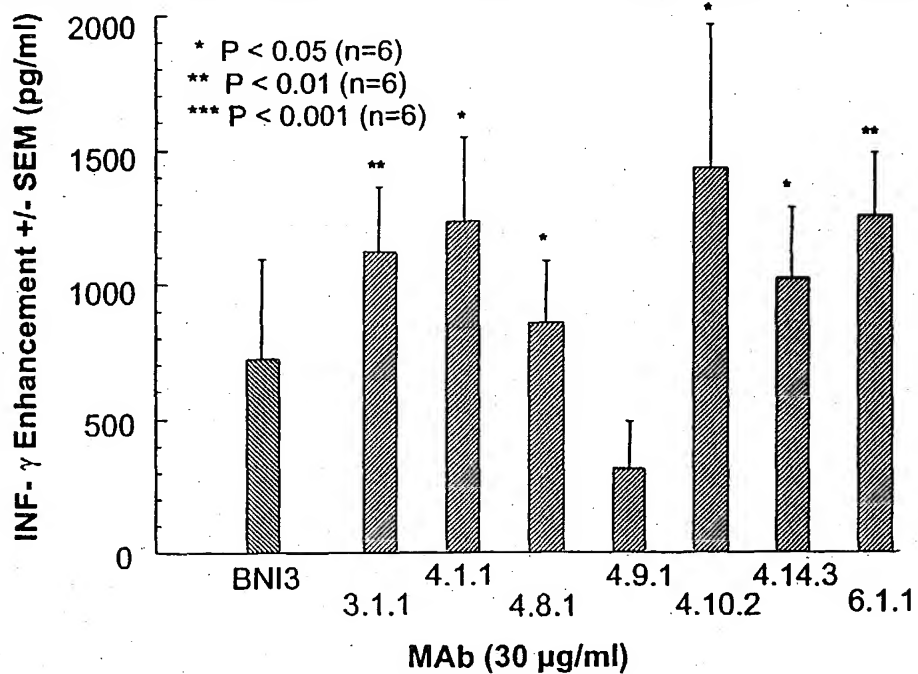


Figure 16

Enhancement of IL-2 Production Induced by Anti-CTLA4 MAb CT4.1.1 (30 μ g/ml) Binding to Human PBMC Stimulated with SEA (100 ng/ml) Plus Anti-CD3 MAb (60 ng/ml)

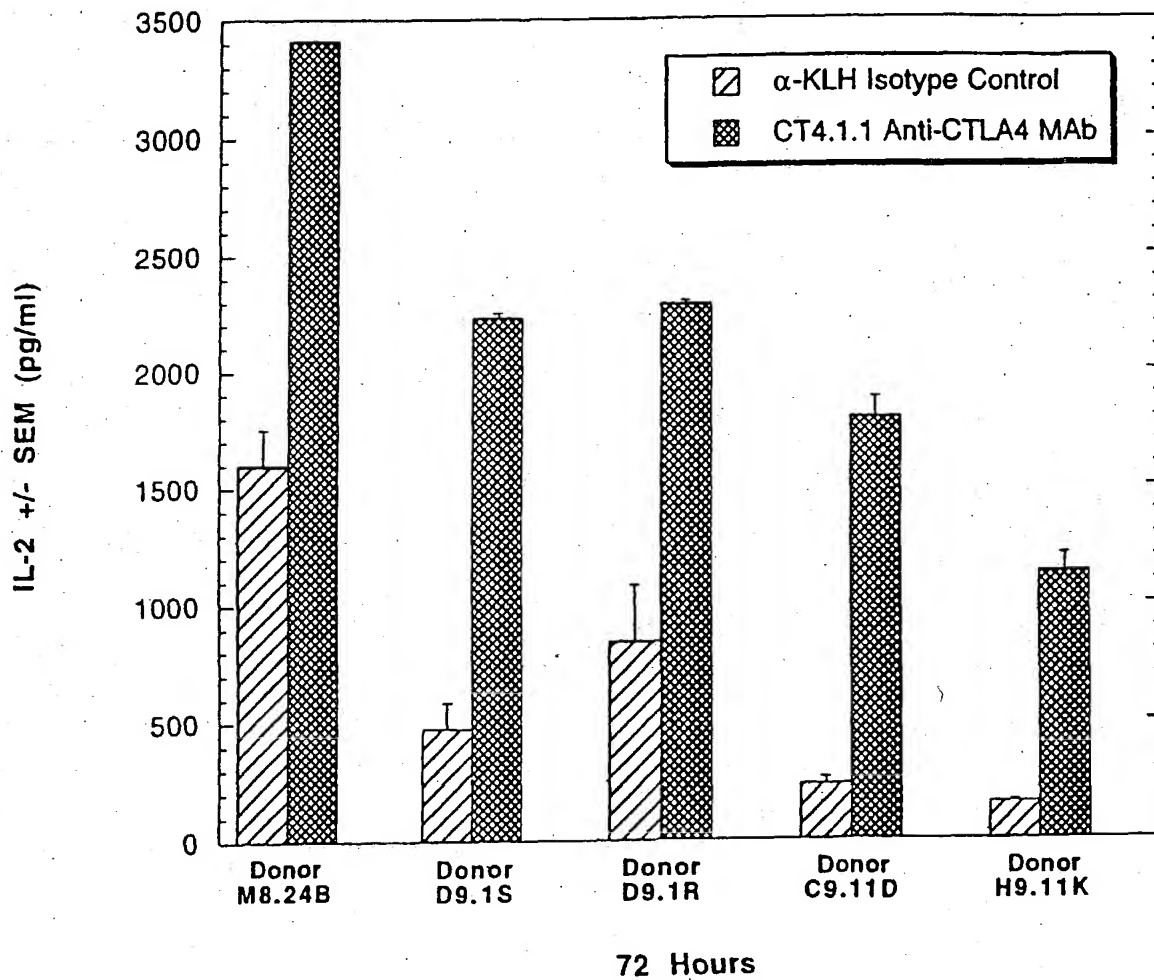


Figure 17

Enhancement of IL-2 Production Induced by Anti-CTLA4 MAbs
(30 μ g/ml) in Human Whole Blood Stimulated with SEA
(100 ng/ml) Plus Anti-CD3 MAb (60 ng/ml)

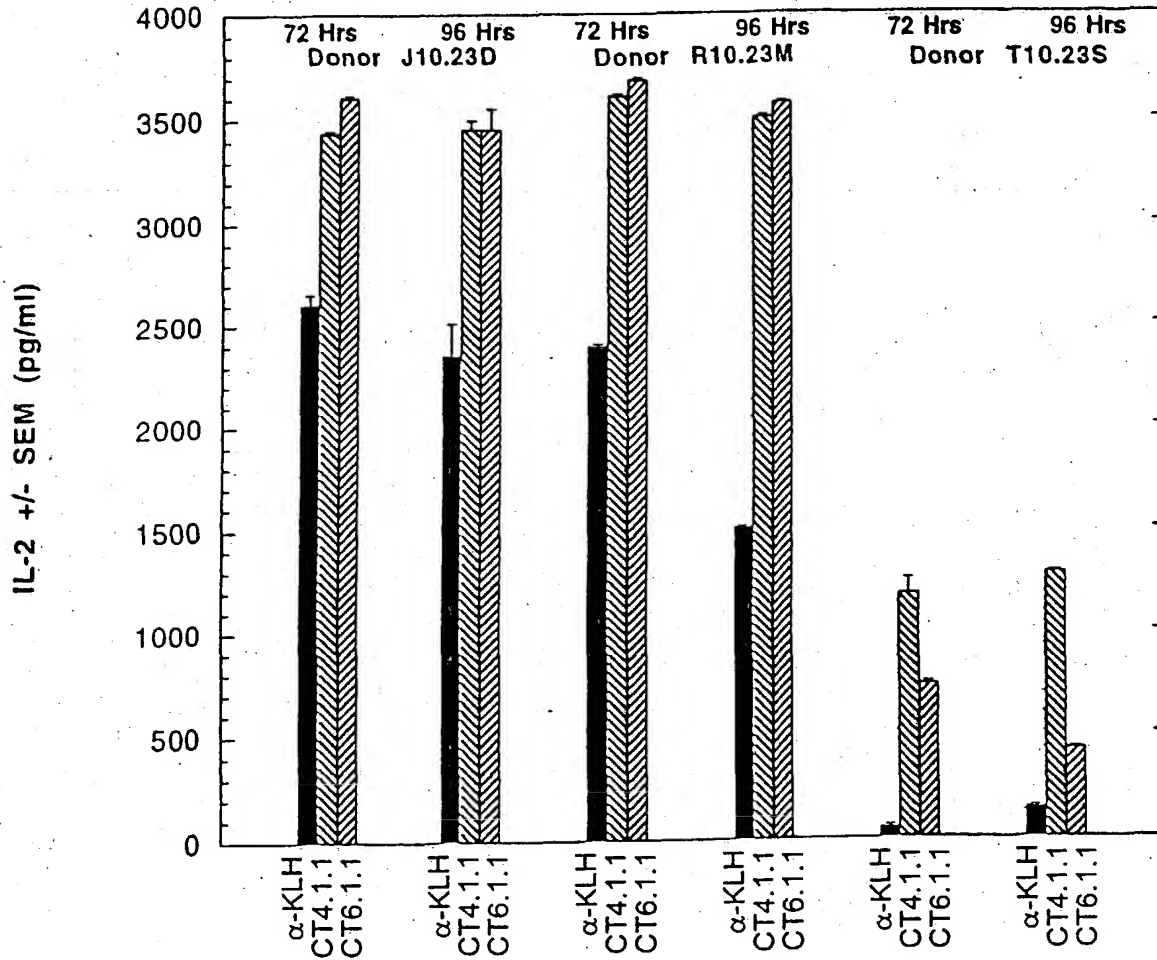
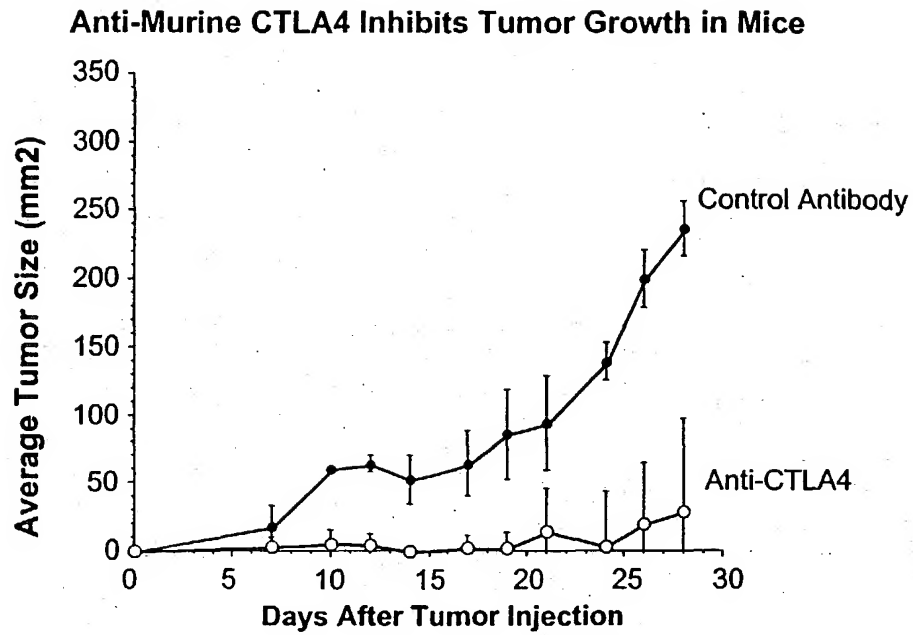


Figure 18

Treatment was administered on day
0,4,7,and 14 after tumor challenge

Figure 19

**Enhancement of IL-2 Production Induced by Anti-CTLA4 MAbs
(30 μ g/ml) in the 72 Hour T Blast / Raji and
Superantigen Assays (6 Donors)**

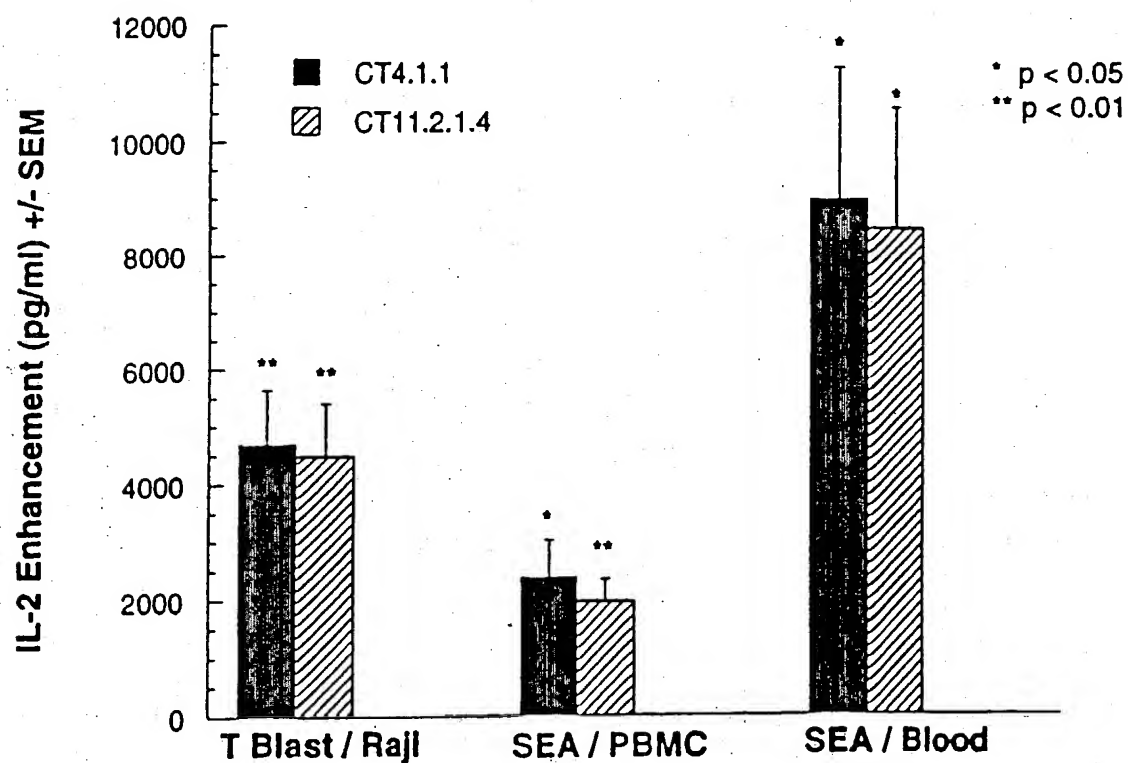


Figure 20

**Enhancement of Human T Cell IL-2 Production
Induced by Anti-CTLA4 MAbs in
the 72 Hour T Blast / Raji Assay**

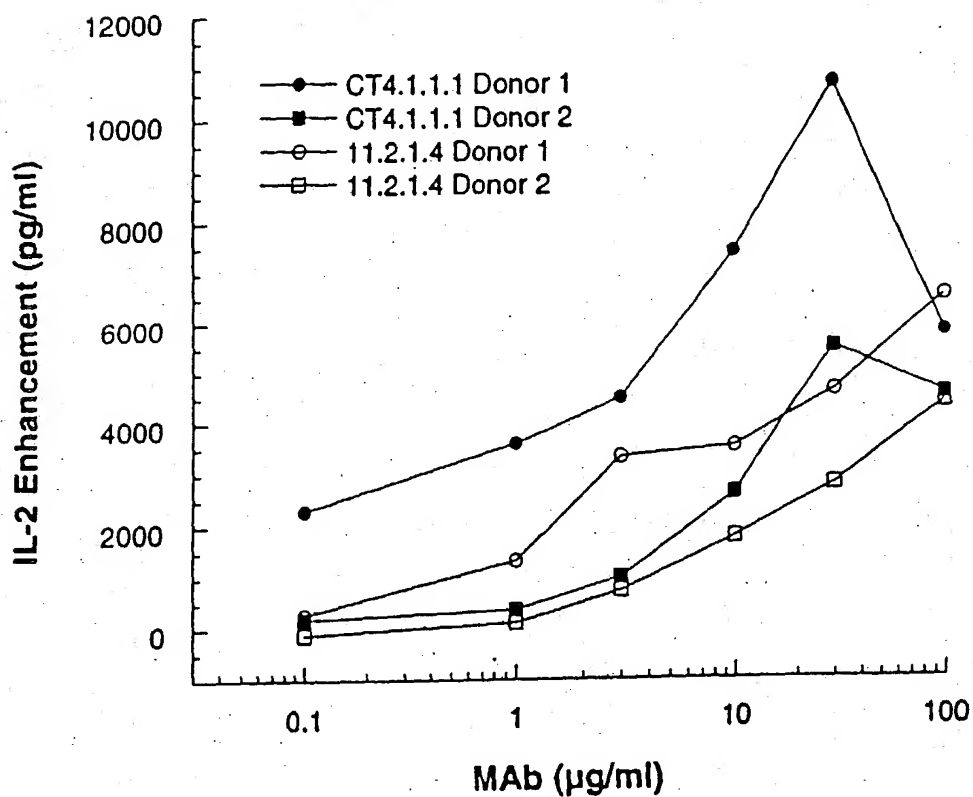
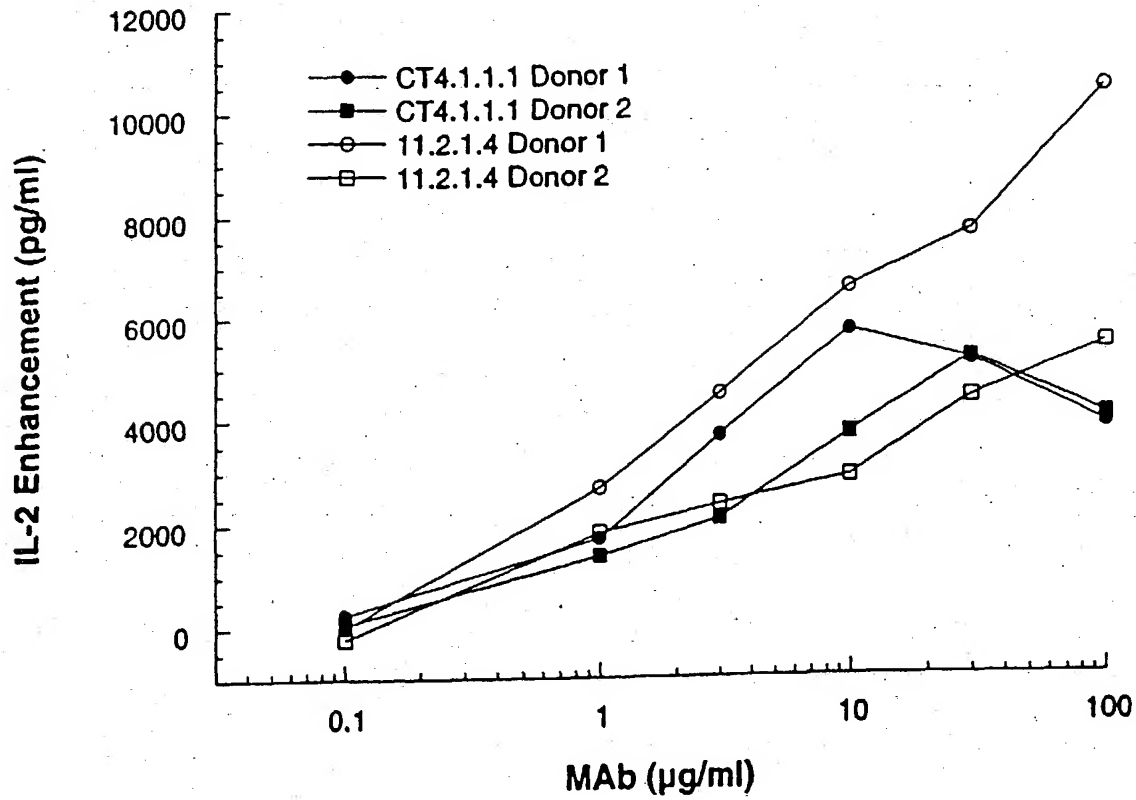


Figure 21

**Enhancement of IL-2 Production Induced by Anti-CTLA4
MAbs in Whole Blood Stimulated with
Superantigen (100 ng/ml)**



- Signal peptides shown in bold and large text
- Open reading frame for genomic clone underlined
- Mutations introduced to make deglycosylated Ab (N294Q) double underlined and large text

Figure 22A 4.1.1 IgG2 Heavy Chain cDNA

ATGGAGTTTGGGCTGAGCTGGGTTTTCTCGTTGCTCTTTTAAGA
GGTGTCCAGTGTCAGGTGCAGCTGGTGGAGTCTGGGGGAGGCGTGGTCCAG
 CCTGGGAGGTCCCTGAGACTCTCCTGTGTAGCGTCTGGATTACCTTCAGTAG
 CCATGGCATGCACTGGGTCCGCCAGGCTCCAGGCAAGGGGCTGGAGTGGGTGG
 CAGTTATATGGTATGATGGAAGAAATAAATACTATGCAGACTCCGTGAAGGGC
 CGATTACCATCTCCAGAGACAATTCCAAGAACACGCTGTTTCTGCAAATGAA
 CAGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTGCGAGAGGAGGTCACT
 TCGGTCCTTTTGACTACTGGGGCCAGGGAACCCTGGTCAACGTCCTCAGCC
 TCCACCAAGGGCCCATCGGTCTTCCCCCTGGCGCCCTGCTCCAGGAGCACCTC
 CGAGAGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCGG
 TGACGGTGTCTGGAACTCAGGCGCTCTGACCAGCGGCGTGCACACCTTCCCA
 GCTGTCCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCC
 CTCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTCAGATCACAAAGCCCA
 GCAACACCAAGGTGGACAAGACAGTTGAGCGCAAATGTTGTGTGAGTGCCCA
 CCGTGCCCAGCACCACTGTGGCAGGACCGTCAGTCTTCCCTCTTCCCCCAAAA
 ACCCAAGGACACCCCTCATGATCTCCCGGACCCCTGAGGTCACGTGCGTGGTGG
 TGGACGTGAGCCACGAAGACCCCGAGGTCCAGTTCAACTGGTACGTGGACGGC
 GTGGAGGTGCATAATGCCAAGACAAAGCCACGGGAGGAGCAGTTCAACAGCAC
 GTTCCGTGTGGTCAGCGTCCTCACCCTTGTGCACCAGGACTGGCTGAACGGCA
 AGGAGTACAAGTGCAAGGTCTCCAACAAAGGCCTCCAGCCCCCATCGAGAAA
 ACCATCTCCAAAACCAAAGGGCAGCCCCGAGAACCACAGGTGTACACCCTGCC
 CCCATCCCGGGAGGAGATGACCAAGAACCAGGTGAGCCTGACCTGCCTGGTCA
 AAGGCTTCTACCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCG
 GAGAACAATAACAAGACCACACCTCCCATGCTGGACTCCGACGGCTCCTTCTT
 CCTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGGAACGTCT
 TCTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACACGCAGAAGAGC
 CTCTCCCTGTCTCCGGGTAAATGA (SEQ ID NO:53)

Figure 22B 4.1.1 IgG2 Heavy Chain Genomic DNA

ATGGAGTTTGGGCTGAGCTGGGTTTTCTCGTTGCTCTTTTAAGA
GGTGTCCAGTGTCAGGTGCAGCTGGTGGAGTCTGGGGAGGCGTGGTCCAG
 CCTGGGAGGTCCCTGAGACTCTCCTGTGTAGCGTCTGGATTACCTTCAGTAG
 CCATGGCATGCACTGGGTCCGCCAGGCTCCAGGCAAGGGGCTGGAGTGGGTGG
 CAGTTATATGGTATGATGGAAGAAATAAATACTATGCAGACTCCGTGAAGGGC
 CGATTCACCATCTCCAGAGACAATTCGAAGAACACGCTGTTTCTGCAAATGAA
 CAGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTGCGAGAGGAGGTCACT
 TCGGTCTTTTTGACTACTGGGGCCAGGGAACCTGGTCACCGTCTCCTCAGCT
 AGCACCAAGGGCCCATCGGTCTTCCCCCTGGCGCCCTGCTCCAGGAGCACCTC
 CGAGAGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCGG
 TGACGGTGTTCGTGGAACCTCAGGCGCTCTGACCAGCGGCGTGCACACCTTCCCA
 GCTGTCTTACAGTCTCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCC
 CTCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAAGCCCA
 GCAACACCAAGGTGGACAAGACAGTTGGTGAGAGGCCAGCTCAGGGAGGGAGG
 GTGTCTGCTGGAAGCCAGGCTCAGCCCTCCTGCCTGGACGCACCCCGGCTGTG
 CAGCCCCAGCCCAGGGCAGCAAGGCAGGCCCCCATCTGTCTCCTCACCCGAGG
 CCTCTGCCCCGCCCCACTCATGCTCAGGGAGAGGGTCTTCTGGCTTTTTCCACC
 AGGCTCCAGGCAGGCACAGGCTGGGTGCCCTACCCAGGCCCTTCACACACA
 GGGGCAGGTGCTTGGCTCAGACCTGCCAAAAGCCATATCCGGGAGGACCCTGC
 CCCTGACCTAAGCCGACCCCAAAGGCCAAACTGTCCACTCCCTCAGCTCGGAC
 ACCTTCTCTCCTCCCAGATCCGAGTAACTCCCAATCTTCTCTCTGCAGAGCGC
 AAATGTTGTGTCGAGTGCCACCGTGCCAGGTAAGCCAGCCCAGGCCTCGCC
 CTCCAGCTCAAGGCGGGACAGGTGCCCTAGAGTAGCCTGCATCCAGGGACAGG
 CCCCAGCTGGGTGCTGACACGTCCACCTCCATCTCTTCCCTCAGCACCACCTGT
 GGCAGGACCGTCAGTCTTCCCTCTTCCCCCAAAACCCAAGGACACCCTCATGA
 TCTCCCGGACCCCTGAGGTACAGTGCGTGGTGGTGGACGTGAGCCACGAAGAC
 CCCGAGGTCCAGTTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAA
 GACAAAGCCACGGGAGGAGCAGTTCAACAGCACGTTCCGTGTGGTCAGCGTCC
 TCACCGTTGTGCACCAGGACTGGCTGAACGGCAAGGAGTACAAGTGCAAGGTC
 TCCAACAAAGGCCTCCCAGCCCCCATCGAGAAAACCATCTCCAAAACCAAAGG
 TGGGACCCGCGGGGTATGAGGGCCACATGGACAGAGGCCGGCTCGGCCACCC
 TCTGCCCTGGGAGTGACCGCTGTGCCAACCTCTGTCCCTACAGGGCAGCCCCG
 AGAACCACAGGTGTACACCCTGCCCCCATCCCGGAGGAGATGACCAAGAACC
 AGGTACGCCTGACCTGCCTGGTCAAAGGCTTCTACCCAGCGACATCGCCGTG
 GAGTGGGAGAGCAATGGGCAGCCGGAACAACACTACAAGACCACACCTCCCAT
 GCTGGACTCCGACGGCTCCTTCTTCTCTACAGCAAGCTCACCGTGGACAAGA
 GCAGGTGGCAGCAGGGGAACGTCTTCTCATGCTCCGTGATGCATGAGGCTCTG
 CACAACCACTACACGCAGAAGAGCCTCTCCCTGTCTCCGGGTAAATGA (SEQ
 ID NO:54)

Figure 22C 4.1.1 IgG2 Heavy Chain Protein

MEFGLSWVFLVALLRGVQCQVQLVESGGGVVQPGRSLRLSCVASGFTFSS
 HGMHWVRQAPGKLEWVAVIWDGRNKYYADSVKGRFTISRDN SKNTLFLQMN
 SLRAEDTAVYYCARGGHFGPFDYWGGTLTVSSASTKGPSVFPLAPCSRSTS
 ESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVP
 SSNFGTQTYTCNV DHKPSNTKV DKTVERKCCVECP PCPAPPVAGPSVFLFPPK
 PKDTLMI SRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNST
 FRVVSVLTVVHQDWLNGKEYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTL P
 PSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPMLDSDGSF F
 LYSKLTVDKSRWQQGNV FSCSV MHEALHNHYTQKSLSLSPGK (SEQ ID
 NO:63)

Figure 22D 4.1.1 IgG2 Heavy Chain cDNA N294Q

ATGGAGTTTGGGCTGAGCTGGGTTTTCTCGTTGCTCTTTTAAGA
GGTGTCCAGTGTCAGGTGCAGCTGGTGGAGTCTGGGGGAGGCGTGGTCCAG
 CCTGGGAGGTCCCTGAGACTCTCCTGTGTAGCGTCTGGATTACCTTCAGTAG
 CCATGGCATGCACTGGGTCCGCCAGGCTCCAGGCAAGGGGCTGGAGTGGGTGG
 CAGTTATATGGTATGATGGAAGAAATAAATACTATGCAGACTCCGTGAAGGGC
 CGATTCACCATCTCCAGAGACAATTCCAAGAACACGCTGTTTCTGCAAATGAA
 CAGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTGCGAGAGGAGGTCACT
 TCGGTCTTTTACTACTGGGGCCAGGGAACCCCTGGTCACCGTCTCCTCAGCC
 TCCACCAAGGGCCCATCGGTCTTCCCCCTGGCGCCCTGCTCCAGGAGCACCTC
 CGAGAGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCGG
 TGACGGTGTTCGTGGAACCTCAGGCGCTCTGACCAGCGGCGTGCACACCTTCCCA
 GCTGTCTTACAGTCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCC
 CTCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAGCCCCA
 GCAACACCAAGGTGGACAAGACAGTTGAGCGCAAATGTTGTGTCGAGTGCCCA
 CCGTGCCCAGCACCACTGTGGCAGGACCGTCAGTCTTCCTCTTCCCCCCTAAA
 ACCCAAGGACACCCTCATGATCTCCCGGACCCCTGAGGTCACGTGCGTGGTGG
 TGGACGTGAGCCACGAAGACCCCGAGGTCCAGTTCAACTGGTACGTGGACGGC
 GTGGAGGTGCATAATGCCAAGACAAAGCCACGGGAGGAGCAGTT**CCA**AAGCAC
 GTTCCGTGTGGTCAGCGTCTCACCCTTGTGCACCAGGACTGGCTGAACGGCA
 AGGAGTACAAGTGCAAGGTCTCCAACAAAGGCCTCCCAGCCCCCATCGAGAAA
 ACCATCTCCAAAACCAAAGGGCAGCCCCGAGAACCACAGGTGTACCCCTGCC
 CCCATCCCGGGAGGAGATGACCAAGAACCAGGTGACCTGACCTGCCTGGTCA
 AAGGCTTCTACCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCG
 GAGAACAACACTACAAGACCACACCTCCCATGCTGGACTCCGACGGCTCCTTCTT
 CCTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGGAACGTCT
 TCTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACACGCAGAAGAGC
 CTCTCCCTGTCTCCGGGTAAATGA (SEQ ID NO:55)

Figure 22E 4.1.1 IgG2 Heavy Chain Protein N294Q

MEFGLSWVFLVALLRGVQCQVQLVESGGGVVQPGRSLRLSCVASGFTFSS
 HGMHWVRQAPGKLEWVAVIWDGRNKYYADSVKGRFTISRDNKNTLFLQMN
 SLRAEDTAVYYCARGGHFGPFDYWGQGLVTVSSASTKGPSVFPLAPCSRSTS
 ESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVP
 SSNFGTQTYTCNVDHKPSNTKVDKTVERKCCVECPPCPAPPVAGPSVFLFPPK
 PKDTLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQ**Q**ST
 FRVVSVLTVVHQDWLNGKEYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTL
 PSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPMLDSGSGFF
 LYSKLTVDKSRWQQGNVFSQSVMEALHNHYTQKSLSLSPGK (SEQ ID
 NO:64)

Figure 22F 4.1.1 Kappa Chain DNA

ATGGAAACCCAGCGCAGCTTCTCTTCCTCCTGCTACTCTGGCTC
 CCAGATAACCACCGGAGAAATTGTGTTGACGCAGTCTCCAGGCACCCTGTC
 TTTGTCTCCAGGGGAAAGAGCCACCCTCTCCTGCAGGGCCAGTCAGAGTATTA
 GCAGCAGCTTCTTAGCCTGGTACCAGCAGAGACCTGGCCAGGCTCCCAGGCTC
 CTCATCTATGGTGCATCCAGCAGGGCCACTGGCATCCCAGACAGGTTCAAGTGG
 CAGTGGGTCTGGGACAGACTTCACTCTCACCATCAGCAGACTGGAGCCTGAAG
 ATTTTGCAGTGTATTACTGTCAGCAGTATGGTACCTCACCTGGACGTTCCGGC
 CAAGGGACCAAGGTGGAATCAAACGAACTGTGGCTGCACCATCTGTCTTCAT
 CTTCCCGCCATCTGATGAGCAGTTGAAATCTGGAAGTGCCTCTGTTGTGTGCC
 TGCTGAATAACTTCTATCCCAGAGAGGCCAAAGTACAGTGAAGGTGGATAAC
 GCCCTCCAATCGGGTAACTCCCAGGAGAGTGTACAGAGCAGGACAGCAAGGA
 CAGCACCTACAGCCTCAGCAGCACCTGACGCTGAGCAAAGCAGACTACGAGA
 AACACAAAGTCTACGCCTGCGAAGTCACCCATCAGGGCCTGAGCTCGCCCCGT
 ACAAAGAGCTTCAACAGGGGAGAGTGTTAG (SEQ ID NO:56)

Figure 22G 4.1.1 Kappa Chain Protein

METPAQLLFLLLLWLPDTTGEIVLTQSPGTLSPGERATLSCRASQSSIS
 SSFLAWYQQRPGQAPRLLIYGASSRATGIPDRFSGSGSGTDFTLTISRLEPED
 FAVYYCQOYGTSPWTFGQGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVVCL
 LNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYLSSTLTLSKADYEK
 HKVYACEVTHQGLSSPVTKSFNREGC (SEQ ID NO:65)

Figure 22H 4.8.1 Heavy Chain DNA

ATGGAGTTTGGGCTGAGCTGGGTTTTCTCCTCGTTGCTCTTTTAAGA
 GGTGTCCAGTGT CAGGTGCAGCTGGTGGAGTCTGGGGGAGGCGTGGTCCAG
 CCTGGGAGGTCCCTGAGACTCTCCTGTACAGCGTCTGGATTACCTTCAGTAA
 CTATGGCATGCACTGGGTCCGCCAGGCTCCAGGCAAGGGGCTGGAGTGGGTGG
 CAGTTATATGGTATGATGGAAGTAATAAACACTATGGAGACTCCGTGAAGGGC
 CGATTACCATCTCCAGTGACAATTCCAAGAACACGCTGTATCTGCAAATGAA
 CAGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTGCGAGAGGAGAGAGAC
 TGGGGTCTACTTTGACTACTGGGGCCAGGGAACCCTGGTCACCGTCTCCTCA
 GCCTCCACCAAGGGCCCATCGGTCTTCCCCCTGGCGCCCTGCTCCAGGAGCAC
 CTCCGAGAGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAAC
 CGGTGACGGTGTCTGTGGAAGTCAAGGCGCTCTGACCAGCGGCGTGACACCTTC
 CCAGCTGTCTACAGTCTCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGT
 GCCCTCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAGC
 CCAGCAACACCAAGGTGGACAAGACAGTTGAGCGCAAATGTTGTGTCGAGTGC
 CCACCGTGCCAGCACCACTGTGGCAGGACCGTCAGTCTTCTTCCCCCCC
 AAAACCCCAAGGACACCCTCATGATCTCCCGGACCCCTGAGGTCACGTGCGTGG
 TGGTGGACGTGAGCCACGAAGACCCCGAGGTCCAGTTCAACTGGTACGTGGAC
 GGCGTGGAGGTGCATAATGCCAAGACAAAGCCACGGGAGGAGCAGTTCAACAG
 CACGTTCCGTGTGGTCAGCGTCTCACCCTGTGTGACCAGGACTGGCTGAACG
 GCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGGCCTCCCAGCCCCCATCGAG
 AAAACCATCTCCAAAACCAAAGGGCAGCCCCGAGAACCACAGGTGTACACCCT
 GCCCCCATCCCGGGAGGAGATGACCAAGAACCAGGTGAGCCTGACCTGCCTGG
 TCAAAGGCTTCTACCCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAG
 CCGGAGAACAACACTACAAGACCACACCTCCCATGCTGGACTCCGACGGCTCCTT
 CTTCTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGGAACG
 TCTTCTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACACGCAGAAG
 AGCCTCTCCCTGTCTCCGGGTAAATGA (SEQ ID NO:57)

Figure 22I 4.8.1 Heavy Chain Protein

MEFGLSWVFLVALLRGVQCQVQLVESGGGVVQPGRSRLRLSCTASGFTFSN
 YGMHWVRQAPGKGLEWVAVIWDGNSKHYGDSVKGRFTISSDNSKNTLYLQMN
 SLRAEDTAVYYCARGERLGSYFDYWGQGLTVTVSSASTKGPSVFPLAPCSRST
 SESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTV
 PSSNFGTQTYTCNVDPKPSNTKVDKTVERKCCVECPPCPAPPVAGPSVFLFPP
 KPKDTLMISRTPEVTCVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNS
 TFRVSVSLTVVHQDWLNGKEYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTL
 PPSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPMLDSGFS
 FLYSKLTVDKSRWQQGNVFSFSVMHEALHNHYTQKSLSLSPGK (SEQ ID
 NO:66)

Figure 22J 4.8.1 Kappa Chain DNA

ATGGAAACCCAGCGCAGCTTCTCTTCCTCCTGCTACTCTGGCTC
 CCAGATAACCACCGGAGAAATTGTGTTGACGCAGTCTCCAGGCACCCTGTC
 TTTGTCTCCAGGGGAAAGAGCCACCCTCTCCTGCAGGACCAGTGTTAGCAGCA
 GTTACTTAGCCTGGTACCAGCAGAAACCTGGCCAGGCTCCCAGGCTCCTCATC
 TATGGTGCATCCAGCAGGGCCACTGGCATCCCAGACAGGTTCAAGTGGCAGTGG
 GTCTGGGACAGACTTCACTCTCACCATCAGCAGACTGGAGCCTGAAGATTTTG
 CAGTCTATTACTGTGAGCAGTATGGCATCTCACCCTTCACTTTTCGGCGGAGGG
 ACCAAGGTGGAGATCAAGCGAACTGTGGCTGCACCATCTGTCTTCATCTTCCC
 GCCATCTGATGAGCAGTTGAAATCTGGAAGTGCCTCTGTTGTGTGCCTGCTGA
 ATAACCTCTATCCCAGAGAGGCCAAAGTACAGTGGAAGGTGGATAACGCCCTC
 CAATCGGGTAACCTCCCAGGAGAGTGTACAGAGCAGGACAGCAAGGACAGCAC
 CTACAGCCTCAGCAGCACCCTGACGCTGAGCAAAGCAGACTACGAGAAACACA
 AAGTCTACGCCTGCGAAGTCACCCATCAGGGCCTGAGCTCGCCCGTCACAAAG
 AGCTTCAACAGGGGAGAGTGTTAG (SEQ ID NO:58)

Figure 22K 4.8.1 Kappa Chain Protein

METPAQLLFLLLLWLPDTTGEIVLTQSPGTLSPGERATLSCRTSVSSS
 YLAWYQQKPGQAPRLLIYGASSRATGIPDRFSGSGSGTDFTLTISRLEPEDFA
 VYYCQQYGISPFTFGGGTKVEIKRTVAAPSVFIFPPSDEQLKSGTASVCLLN
 NFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSTYSLSSTLTLSKADYEKHK
 VYACEVTHQGLSPVTKSFNRGEC (SEQ ID NO:67)

Figure 22L 6.1.1 Heavy Chain DNA

ATGGAGTTTGGGCTGAGCTGGGTTTTCTCGTTGCTCTTTTAAGA
GGTGTCCAGTGTCAGGTGCAGCTGGTGGAGTCTGGGGGAGGCGTGGTCCGAG
 CCTGGGAGGTCCCTGAGACTCTCCTGTACAGCGTCTGGATTACCTTCAGTAG
 TTATGGCATGCACTGGGTCCGCCAGGCTCCAGGCAAGGGGCTGGAGTGGGTGG
 CAGTTATATGGTATGATGGAAGCAATAAACAATATGCAGACTCCGCGAAGGGC
 CGATTACCATCTCCAGAGACAATTCCAAGAACACGCTGTATCTGCAAATGAA
 CAGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTGCGAGAGCCGGACTGC
 TGGGTTACTTTGACTACTGGGGCCAGGGAACCCTGGTCACCGTCTCCTCAGCC
 TCCACCAAGGGCCCATCGGTCTTCCCCCTGGCGCCCTGCTCCAGGAGCACCTC
 CGAGAGCACAGCGGCCCTGGGCTGCCTGGTCAAGGACTACTTCCCCGAACCGG
 TGACGGTGTCTGTGGAACCTCAGGCGCTCTGACCAGCGGCGTGCACACCTTCCCA
 GCTGTCTTACAGTCTCCTCAGGACTCTACTCCCTCAGCAGCGTGGTGACCGTGCC
 CTCCAGCAACTTCGGCACCCAGACCTACACCTGCAACGTAGATCACAAGCCCA
 GCAACACCAAGGTGGACAAGACAGTTGAGCGCAAATGTTGTGTCGAGTGCCCA
 CCGTGCCAGCACCACCTGTGGCAGGACCGTCAGTCTTCTTCTTCCCCCAAA
 ACCCAAGGACACCCTCATGATCTCCCGGACCCCTGAGGTACGTGCGTGGTGG
 TGGACGTGAGCCACGAAGACCCCGAGGTCCAGTTCAACTGGTACGTGGACGGC
 GTGGAGGTGCATAATGCCAAGACAAAGCCACGGGAGGAGCAGTTCAACAGCAC
 GTTCCGTGTGGTTCAGCGTCTCTCACCGTTGTGCACCAGGACTGGCTGAACGGCA
 AGGAGTACAAGTGCAAGGTCTCCAACAAAGGCCTCCCAGCCCCCATCGAGAAA
 ACCATCTCCAAAACCAAAGGGCAGCCCCGAGAACCACAGGTGTACACCCTGCC
 CCCATCCCGGGAGGAGATGACCAAGAACCAGGTTCAGCCTGACCTGCCTGGTCA
 AAGGCTTCTACCCAGCGACATCGCCGTGGAGTGGGAGAGCAATGGGCAGCCG
 GAGAACAACTACAAGACCACACCTCCCATGCTGGACTCCGACGGCTCCTTCTT
 CCTCTACAGCAAGCTCACCGTGGACAAGAGCAGGTGGCAGCAGGGGAACGTCT
 TCTCATGCTCCGTGATGCATGAGGCTCTGCACAACCACTACACGCAGAAGAGC
 CTCTCCCTGTCTCCGGGTAAATGA (SEQ ID NO:59)

Figure 22M 6.1.1 Heavy Chain Protein

MEFGLSWVFLVALLRGVQCQVQLVESGGGVVEPGRSLRLSCTASGFTFSS
 YGMHWVRQAPGKGLEWVAWIWDGSGNKHYSADSAKGRFTISRDNKNTLYLQMN
 SLRAEDTAVYYCARAGLLGYFDYWGQGLTVTVSSASTKGPSVFPLAPCSRSTS
 ESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVP
 SSNFGTQTYTCNVDHKPSNTKVDKTVKCCVECPPCPAPPVAGPSVFLFPPK
 PKDTLMISRTPEVTCVVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNST
 FRVVSIVLTIVHQDWLNGKEYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLP
 PSREEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPMLDSDGSFF
 LYSKLTVDKSRWQQGNVVFSCSVMEALHNHYTQKSLSLSPGK (SEQ ID
 NO:68)

Figure 22N 6.1.1 Kappa Chain DNA

ATGGAAACCCAGCGCAGCTTCTCTTCCTCCTGCTACTCTGGCTC
CCAGATAACCACCGGAGAAATTGTGTTGACGCAGTCTCCAGGCACCCTGTC
 TTTGTCTCCAGGGGAAAGAGCCACCCTCTCCTGTAGGGCCAGTCAAAGTGTTA
 GCAGCTACTTAGCCTGGTACCAACAGAAACCTGGCCAGGCTCCCAGGCCCTC
 ATCTATGGTGTATCCAGCAGGGCCACTGGCATCCCAGACAGGTTTCAAGTGGCAG
 TGGGTCTGGGACAGACTTCACTCTCACCATCAGCAGACTGGAGCCTGAAGATT
 TTGCAGTGTATTACTGTGTCAGCAGTATGGTATCTCACCATTCACTTTCGGCCCT
 GGGACCAAAGTGGATATCAAACGAACTGTGGCTGCACCATCTGTCTTCATCTT
 CCCGCCATCTGATGAGCAGTTGAAATCTGGAACTGCCTCTGTTGTGTGCCTGC
 TGAATAACTTCTATCCCAGAGAGGCCAAAGTACAGTGGAAGGTGGATAACGCC
 CTCCAATCGGGTAACTCCCAGGAGAGTGTACAGAGCAGGACAGCAAGGACAG
 CACCTACAGCCTCAGCAGCACCCCTGACGCTGAGCAAAGCAGACTACGAGAAAC
 ACAAAGTCTACGCCTGCGAAGTCACCCATCAGGGCCTGAGCTCGCCCGTCACA
 AAGAGCTTCAACAGGGGAGAGTGTTAG (SEQ ID NO:60)

Figure 22O 6.1.1 Kappa Chain Protein

METPAQLLFLLLLWLPDTTGEIVLTQSPGTLSSLSPGERATLSCRASQSVS
 SYLAWYQQKPGQAPRPLIYGVSSRATGIPDRFSGSGSGTDFTLTISRLEPEDF
 AVYYCQQYGISPFTFGPGTKVDIKRTVAAPSVFIFPPSDEQLKSGTASVVCLL
 NNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYSLSSTLTLSKADYEKH
 KVIYACEVTHQGLSSPVTKSFNRGEC (SEQ ID NO:69)

Figure 22P 11.2.1 IgG2 Heavy Chain DNA:

ATGGAGTTTGGGCTGAGCTGGGTTTTCTCCTCGTTGCTCTTTTAAGA
GGTGTCAGTGTCAGGTGCAGCTGGTGGAGTCTGGGGGAGGCGTGGTCCAG
 CCTGGGAGGTCCCTGAGACTCTCCTGTGCAGCGTCTGGATTACCTTCAGTAG
 CTATGGCATGCACTGGGTCCGCCAGGCTCCAGGCAAGGGGCTGGAGTGGGTGG
 CAGTTATATGGTATGATGGAAGTAATAAATACTATGCAGACTCCGTGAAGGGC
 CGATTACCATCTCCAGAGACAATTCCAAGAACACGCTGTATCTGCAAATGAA
 CAGCCTGAGAGCCGAGGACACGGCTGTGTATTACTGTGCGAGAGATCCGAGGG
 GAGCTACCCTTTACTACTACTACTACGGTATGGACGTCTGGGGCCAAGGGACC
 ACGGTACCGTCTCCTCAGCCTCCACCAAGGGCCCATCGGTCTTCCCCCTGGC
 GCCCTGCTCCAGGAGCACCTCCGAGAGCACAGCGGCCCTGGGCTGCCTGGTCA
 AGGACTACTTCCCCGAACCGGTGACGGTGTCTGTGGAAGTCAAGGCGCTCTGACC
 AGCGGCGTGCACACCTTCCAGCTGTCTTACAGTCTCAGGACTCTACTCCCT
 CAGCAGCGTGGTGACCGTGCCCTCCAGCAACTTCGGCACCCAGACCTACACCT
 GCAACGTAGATCACAAGCCCAGCAACACCAAGGTGGACAAGACAGTTGAGCGC
 AAATGTTGTGTCGAGTGCCACCGTGCCAGCACCACCTGTGGCAGGACCGTC
 AGTCTTCTCTTCCCCCCTAAACCAAGGACACCCCTCATGATCTCCCCGACCC
 CTGAGGTACGTGCGTGGTGGTGGACGTGAGCCACGAAGACCCGAGGTCCAG
 TTCAACTGGTACGTGGACGGCGTGGAGGTGCATAATGCCAAGACAAAGCCACG
 GGAGGAGCAGTTCAACAGCACGTTCGGTGTGGTCAAGCTCCTCACCCTTGTGC
 ACCAGGACTGGCTGAACGGCAAGGAGTACAAGTGCAAGGTCTCCAACAAAGGC
 CTCCCAGCCCCCATCGAGAAAACCATCTCCAAAACCAAGGGCAGCCCCGAGA
 ACCACAGGTGTACACCCTGCCCCCATCCCGGGAGGAGATGACCAAGAACCAGG
 TCAGCCTGACCTGCCTGGTCAAAGGCTTCTACCCCAGCGACATCGCCGTGGAG
 TGGAGAGCAATGGGCAGCCGGAGAACAATAAGACCAACACCTCCCCTGAGT
 GGACTCCGACGGCTCCTTCTTCTCTACAGCAAGCTCACCCTGGACAAAGAGCA
 GGTGGCAGCAGGGGAACGTCTTCTCATGCTCCGTGATGCATGAGGCTCTGCAC
 AACCCTACACGCAGAAGAGCCTCTCCCTGTCTCCGGGTAAATGA (SEQ ID
 NO:61)

Figure 22Q 11.2.1 IgG2 Heavy Chain Protein:

QVQLVESGGGVVQPGRSLRLSCAASGFTFSSYGMHWVRQAPGKGLEWVAVIWY
 DGSNKYYADSVKGRFTISRDNKNTLYLQMNSLRAEDTAVYYCARDPRGATLY
 YYYYGMDVWGQGTTVTVSSASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFP
 EPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVTVTPSSNFGTQTYTCNVDH
 KPSNTKVDKTKVERKCCVECPPCPAPPVAGPSVFLFPPKPKDTLMISRTPEVTC
 VVVDVSHEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTFRVSVLTVVHQDWL
 NGKEYKCKVSNKGLPAPIEKTISKTKGQPREPQVYTLPPSREEMTKNQVSLTC
 LVKGFYPSPDIAVEWESNGQPENNYKTPPMLDSGSEFLYSLKLTVDKSRWQQG
 NVFSCSVMHREALHNHYTQKSLSLSPGK (SEQ ID NO:70)

Figure 22R 11.2.1 IgG2 Kappa Chain DNA:

ATGGACATGAGGGTCCCCGCTCAGCTCCTGGGGCTCCTGCTACTC
 TGGCTCCGAGGTGCCAGATGTGACATCCAGATGACCCAGTCTCCATCCT
 CCCTGTCTGCATCTGTAGGAGACAGAGTCACCATCACTTGCCGGGCAAGTCAG
 AGCATTAACAGCTATTTAGATTGGTATCAGCAGAAACCAGGGAAAGCCCCTAA
 ACTCCTGATCTATGCTGCATCCAGTTTGCAAAGTGGGGTCCCATCAAGGTTCA
 GTGGCAGTGGATCTGGGACAGATTTCACTCTCACCATCAGCAGTCTGCAACCT
 GAAGATTTTGCAACTTACTACTGTCAACAGTATTACAGTACTCCATTCACTTT
 CGGCCCTGGGACCAAAGTGGAATCAAACGAACTGTGGCTGCACCATCTGTCT
 TCATCTTCCCGCCATCTGATGAGCAGTTGAAATCTGGAAGTGCCTCTGTTGTG
 TGCCTGCTGAATAACTTCTATCCCAGAGAGGCCAAAGTACAGTGGAAGGTGGA
 TAACGCCCTCCAATCGGGTAACTCCCAGGAGAGTGTACAGAGCAGGACAGCA
 AGGACAGCACCTACAGCCTCAGCAGCACCCCTGACGCTGAGCAAAGCAGACTAC
 GAGAAACACAAAGTCTACGCCTGCGAAGTCACCCATCAGGGCCTGAGCTCGCC
 CGTCACAAAGAGCTTCAACAGGGGAGAGTGTTAGTGA (SEQ ID NO:62)

Figure 22S 11.2.1 IgG2 Kappa Chain Protein:

DIQMTQSPSSLSASVGDRVTITCRASQSINSYLDWYQQKPGKAPKLLIYAASS
 LQSGVPSRFSGSGSGTDFTLTISLQPEDFATYYCQQYYSTPFTFGPGTKVEI
 KRTVAAPSVFIFPPSDEQLKSGTASVVCLLNFPYPREAKVQWKVDNALQSGNS
 QESVTEQDSKSTYLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRG
 EC (SEQ ID NO:71)